Prepared by the
Eastern Bloc Planning Committee

for the
Crown Land Classification Committee

Manitoba

JUNE, 1986

Catfish Creek
Land Use Study

Background Report

PROLOGUE: EVALUATION AND SUMMARY

The Catfish Creek Study Area is about 150 square kilometers in size. It is located immediately east of the Belair Provincial Forest in the LGD of Alexander. The area has potential for a number of uses particularly, agriculture, forestry and wildlife. Land management practices which restrict development are necessary to protect the fishery and outdoor recreation values of the area.

Agriculture

Within the Catfish Creek Study Area there are approximately 5,875 hectares (14,500 acres) of Crown land having a high potential for agricultural production. This is about 32 percent of the Study Area. Approximately 70 percent of the area identified for agricultural production is shallow peat soil while the balance is classified as mineral soil.

There is a demand for additional agricultural lands within the LGD of Alexander to accommodate the expansion plans of the existing farmers and their families. In the past, there has been considerable growth of the agricultural industry in the Stead area.

Fisheries

Traverse Bay and Catfish Creek are very good fishing, spawning and nursing areas for local populations of walleye, sauger, pike, etc. A commercial fishery exists in Traverse Bay and the area is important for recreational angling.

Protection of the existing fish habitat and water quality is of primary importance. Buffering of the Catfish Creek waterway to prevent nutrient loading, siltation, channelization, and erosion of stream banks is required to protect the fishery resources of the area.

Forestry

The demand for forest products in Manitoba is forecast to increase at a rate of two to three percent annually. Product innovations, particularly with respect to hardwood utilization, may accelerate this demand. The entire forest resources of the Catfish Creek area are required to maintain the present harvest levels in the region.

The Catfish Creek Study Area is located in Forest Management Unit 23 and represents about 20 percent of the forested land in this F.M.U.

Based upon Statistics Canada's value of production figures, the gross value of the timber supply from FMU 23 is approximately $9 million annually. Most of these benefits are realized within the local communities of Pine Falls and Lac du Bonnet where sawmilling and newsprint manufacture takes place.

Demand for spruce and pine from FMU #23 is sufficient to utilize the entire allowable cut for these species. At the present, however, a large portion of the allowable cut is being harvested from lands under agricultural disposition. Short term surpluses will occur for three to five years, by which time all agriculture lands in FMU 23 will be totally depleted of Crown timber. The affect of any timberland withdrawal from the Project Area represents a compromise of Forestry Branch commitments to the forest industry within 3 years.

The presence of the hardwood species, Fraxinus nigra (black ash), Ulmus americanum (American Elm), and Acer negundo (Manitoba Maple) along the Jackfish and Catfish Creeks are the most significant natural stands of their kind in FMU #23. Their commercial value is substantially higher than spruce and must be recognized and protected.

The protection of the forest resources in the Study Area and the eventual designation of these resources to provincial forest status is the principle forestry concern and objective.

Outdoor Recreation

Recreational activities occur in an extensive manner throughout the study area. Activities such as canoeing, sport hunting, fishing, wandering and the viewing of wildlife are the most common recreational pursuits.

It was determined that a significant portion of Catfish Creek's water course is of utmost importance for recreational pursuits and therefore should be protected.

Wildlife

In the Catfish Creek Study Area are lands which are significant to the production and maintenance of wildlife. Numerous wildlife species utilize the area due to the high quality habitat and relative remoteness of the area.

The land capability for ungulates is one of the highest in the Province; Class 2 and 3. All wildlife species within these areas depend heavily on the quality of habitat which provides cover for reproduction and survival.

Endangered species such as the Great Grey Owl frequent the area because of the breeding habitat and inaccessibility.

Drainage and clearing for agricultural expansion in Class 2 and 3 wildlife areas will be detrimental to existing wildlife populations. However, planned forest harvesting can result in habitat maintenance or enhancement.

High quality wildlife habitat (Class 2 and 3) and habitat essential for maintenance of endangered species (Great Grey Owl) must be protected from degradation.

Water Resources

The main surface water feature in the area is the Catfish Creek which runs approximately midway through the Study Area. Minor natural waterways can be found tributary to the Catfish Creek. A second minor creek, known as Jackfish Creek, flows directly into Lake Winnipeg. Small ponds occur in the northwest part of the Study Area.

The existing agricultural drainage system in the Study Area consists of a network of pioneer drains, tributary to Catfish Creek, established in the late 1940's and early 1950's. Land development for agriculture occurred in the Study Area but only to a minor degree. The tributary drains have not been maintained since they were excavated and are in a deteriorated condition.

Agricultural development of peat and mineral soils within the Study Area will require restoration of the existing drains, building new drains, and establishing the roads and crossings as necessary.

PREFACE

In late 1981, a proposal was received to extend the boundary of the Belair Provincial Forest in order to secure Crown land for long term forestry use. Due to the complexity of the various land uses, the Crown Land Classification Committee has undertaken, at the direction of the Provincial Land Use Committee of Cabinet, an overall land use study for the area.

The purpose of the study is to develop and prepare a Provincial Crown Land Plan and associated operational Crown land plan which rationalizes and allocates the Crown land and natural resources of the area in a manner which will recognize:

(a) Existing land capability and suitability;
(b) Present and future development potential;
(c) Unique and rare resources;
(d) Present and future demands in the area for land and resources, and
(e) Present commitments.

No attempt will be made to incorporate into the plan present and future provincial and national economic conditions which may directly or indirectly affect land and resource demand, development capability and changing social factors and conditions. However, economic costs of all development will be recognized.

The purpose of this Background Report is to describe, delineate and synthesize in report format that information, and those issues, conflicts and agreements basic to a land use study whose purpose is the allocation-classification of Crown land and resources.

This Background Report has been prepared as directed by and under the authority of the Crown Land Classification Committee by the Eastern Bloc Planning Committee.

TABLE OF CONTENTS

page

SECTION 1. GENERAL DESCRIPTION OF THE STUDY AREA

The Study Area 1
Population 1
Land Tenure and Crown Land Commitments 1
Physiographic Description 4
Soil: General Overview 4
Climate 4
Natural Vegetation 6
Infrastructure: Access and Drainage 8

SECTION 2. AGRICULTURE

Introduction 10
Soil Characteristics 10
Production Potential 13
Agricultural Suitability and Development Difficulty 13
Demand for Agricultural Land 14
Area with Potential for Agricultural Expansion 15
Potential Concerns and Issues 15

SECTION 3. FISHERIES

Introduction 17
Areas of Existing Prime Fish Habitat 17
Access and Buffers 19
Concerns and Issues 19

SECTION 4. FORESTRY

Introduction 20
Present Economic Benefits - FMU 23 22
Existing Land Capability and Suitability 23
Future Development Potential 27
Present and Future Demand 27
Concerns and Issues 28

SECTION 5. OUTDOOR RECREATION 29

SECTION 6. WILDLIFE

Introduction 32
Wildlife Capability and Habitat 32
Endangered Species 35
Wildlife Use 37
Concerns and Issues 37
Critical Areas 38

SECTION 7. WATER RESOURCES

page

Introduction 39
Shorelines, Bank Stability, Flood Hazard 39
Groundwater 41
Land Drainage 41
Infrastructure Costs 45
Responsibility for Drains 47
Concerns and Issues 47

LITERATURE CITED 48

APPENDICES

Appendix 1. Soil Capability for Agriculture (Organic Soils) and (Mineral Soils) 50

Appendix 2. Economic Indicators-Assumptions 52

TABLES

page

Table 1. Natural vegetation and soil association in the Catfish Creek Study Area. 6

Table 2. Landform, vegetation and soil relationships in the Catfish Creek Study Area 12

Table 3. Area of major soil capability classes 13

Table 4. Lands advertised in townships 17 and 18 in ranges 8 and 9 EPM 14

Table 5. Estimated economic potential of the forest resources of FMU #23 and the Catfish Creek Study Area: Full Utilization 23

Table 6. Actual production, forest management unit #23, 1980-1981 23

Table 7. Canada Land Inventory Catfish Creek upgraded classification for outdoor recreation 29

Table 8. Estimated pioneer infrastructure and upgrading costs 46

MAPS

page

Map 1. The Study Area 2

Map 2. Land Tenure 3

Map 3. Soils of the Catfish Creek Study Area 5

Map 4. Distribution of Prevailing Vegetation (Smith and Ehrlich 1967:23) 7

Map 5. Surface Drainage System 9

Map 6. Agricultural Land Capability (Canada Land Inventory) 11

Map 7. Area with Potential for Agricultural Expansion 16

Map 8. Significant Fisheries Habitat 18

Map 9. Forest Management Unit #23 21

Map 10. Productive and Non-Productive Forestry Areas 24

Map 11. Forestry Stand Information 25

Map 12. Forest Land Capability (Canada Land Inventory) 26

Map 13. Significant Recreation Areas and Recreation Land Capability 30

Map 14. Wildlife Ungulate Land Capability (Canada Land Inventory) 33

Map 15. Great Grey Owl Habitat Area 36

Map 16. Existing Drainage System and Developed Areas 40

Map 17. Groundwater Pollution Hazard Area 42

Map 18. Development Scenario - Phase I 43

Map 19. Development Scenario - Phase II 44

SECTION 1. GENERAL DESCRIPTION OF THE STUDY AREA

The Study Area

The Catfish Creek Study Area is located approximately 90km northeast of Winnipeg in the LGD of Alexander (Map 1). The area is adjacent to the Belair Provincial Forest, Traverse Bay and the Fort Alexander Indian Reserve. It is bordered by PTH #304, the main drain road and the CNR rail right-of-way.

The Study Area is approximately 150 square kilometers (58 square miles) in size. The majority of area is Crown land. Patented land is minimal and excluded from the study.

Population

There are five local areas of population concentration in close proximity to the Study Area. Population figures[1] for these areas are as follows:

Stead	-	28
Pine Falls	-	885
Ft. Alexander I.R.	-	1,425
St. George	-	303
Powerview	-	690

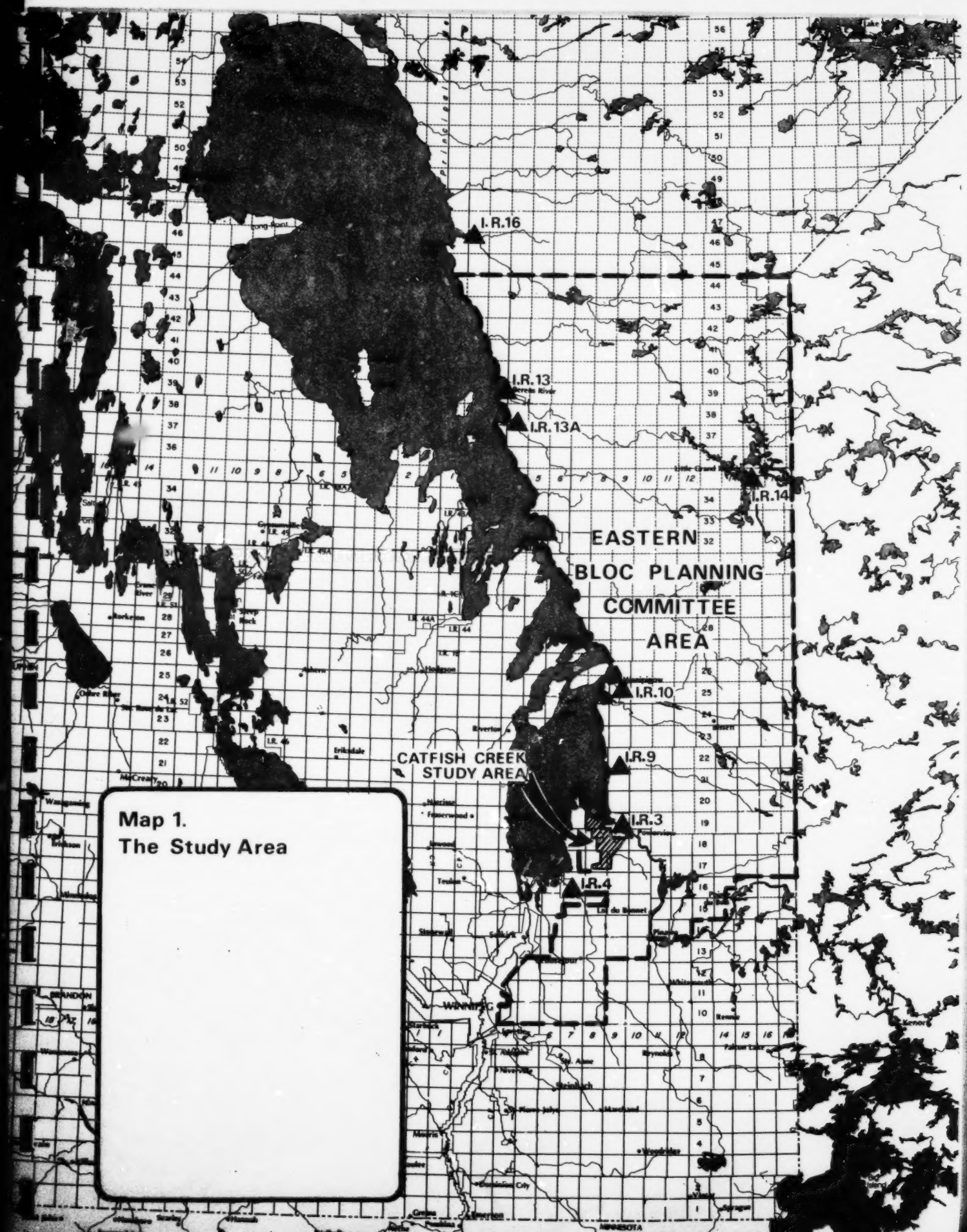
Land tenure and Crown Land Commitments

There are about 15,000 hectares of land in the Study Area, comprised of 86 percent Crown land and 14 percent private land. All Crown lands in the area are managed and administered by the Departments of Natural Resources and Agriculture. However, the Department of Natural Resources has the principal responsibility for Crown land through the administration of the Crown Lands Act.

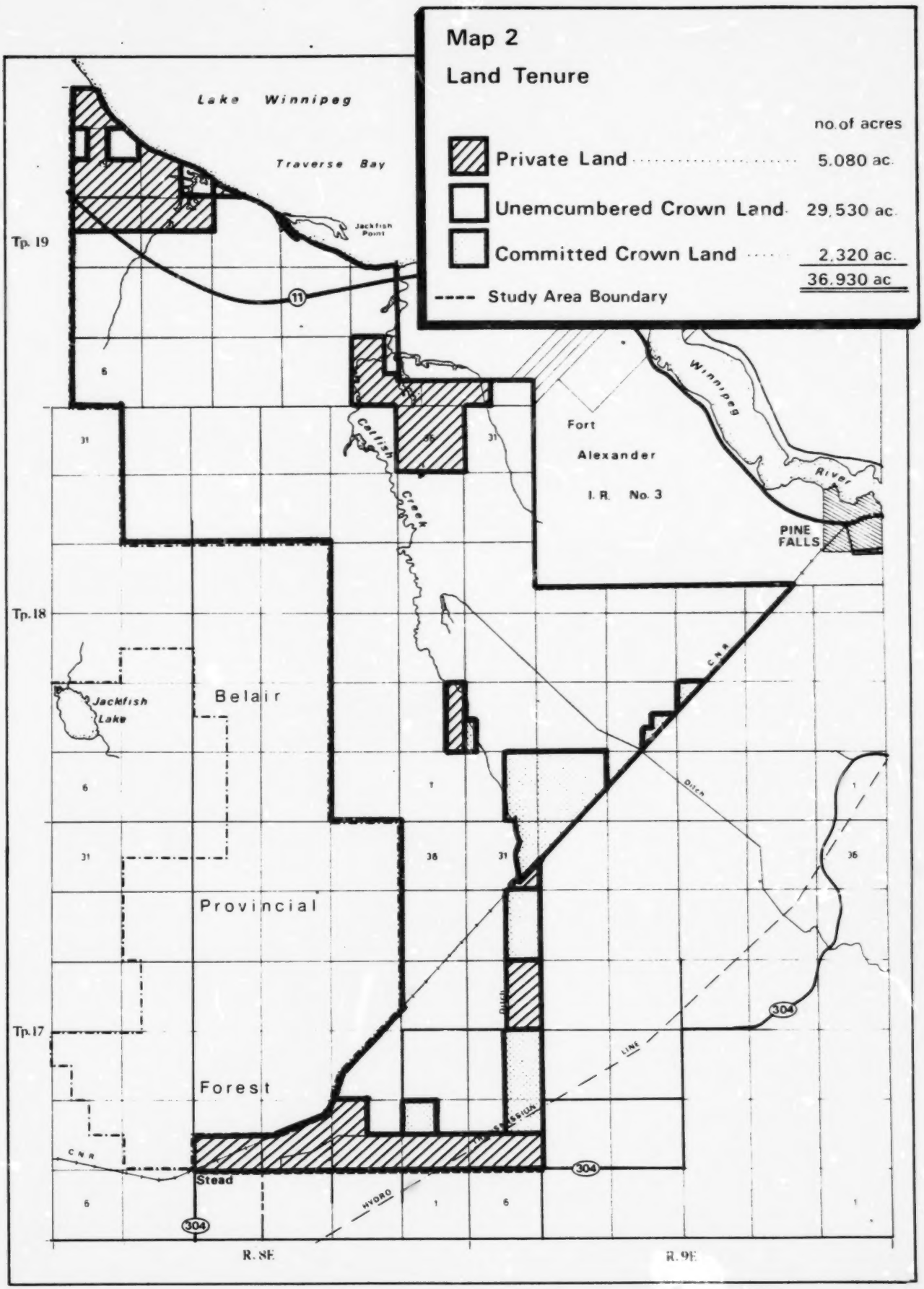
Most of the Crown land (93 percent) is unencumbered (Map 2). The remaining seven percent is committed to agricultural use via long-term leases. Other general land use and commitments in the area are related to forestry operations, hunting, trapping and recreation activities.

---

[1] Statistics Canada, personnel communication. LGD of Alexander 1981 Census.



Map 1.
The Study Area


Map 2
Land Tenure
no. of acres
Private Land ..... 5,080 ac.
Unemcumbered Crown Land 29,530 ac.
Committed Crown Land ..... 2,320 ac.
36,930 ac
Study Area Boundary
Lake Winnipeg
Traverse Bay
Jackfish Point
Tp. 19
Tp. 18
Tp. 17
Catfish Creek
Fort Alexander I. R. No. 3
Winnipeg River
PINE FALLS
Jackfish Lake
Belair
Provincial Forest
C N R
Ditch
LINE
Stead
HYDRO
304
11
R. 8E
R. 9E

Physiographic Description

The Study Area lies partly within the Red River Valley Plain physiographic region (Smith and Ehrlich 1967:19) and lies between three physiographic subdivisions; that of the Winnipeg Lake Terrace Section to the west and the southeastern Lake Terrace and Precambrian Drift Plain to the east. It is bordered on its west side with glacio-fluvial deposits consisting of beach and outwash materials, and to the east by areas of organic deposits with alluvial fine textured deposits on slightly elevated sites. Immediately south there are textured glacial lacustrine and alluvial deposits.

The natural drainage pattern consists of the Catfish and Jackfish Creeks which flow into Traverse Bay. The main developed drainage is associated with Catfish Creek where channelling and lateral ditching and dyking connect. This development is evident in the areas west of the CNR right-of-way. Drainage from Jackfish Lake into Jackfish Creek is more sporadic due to the lack of elevation. This area has a high concentration of organic material, elevated water table and saturated surface land area.

Soil: General Overview

The area has a variety of soil types (Map 3). Soil survey reports indicate that at least 70 percent of the area has surface material classified as organic. The organic deposits have textures which range from fibrous to humic and have depths varying from 0.4 meters to over 1.3 meters. The composition of the organic deposits range from fibrous to mucky peat.

The mineral soils are either glysolic, chernozemic or podzolic. The glysols display chemical and physical properties typical of soils that are water saturated or associated with wetness. In the Study Area this is primarily due to topography and a highly fluctuating water table. The clay textured parent material combined with the latent spring frost limits the permeability and thereby extends the inundation period. The chernozemic soils have deep accumulations of organic matter. Such soils are well to imperfectly drained. Again topographic relief in relation to the existing water table and existing drainage will determine the productivity of the soil (Smith and Ehrlich 1967:26). The podzolic soils which are considered well to imperfectly drained appear mainly developed under forest growth. Their eluviated horizons appear light coloured and underlain by iron accumulations.

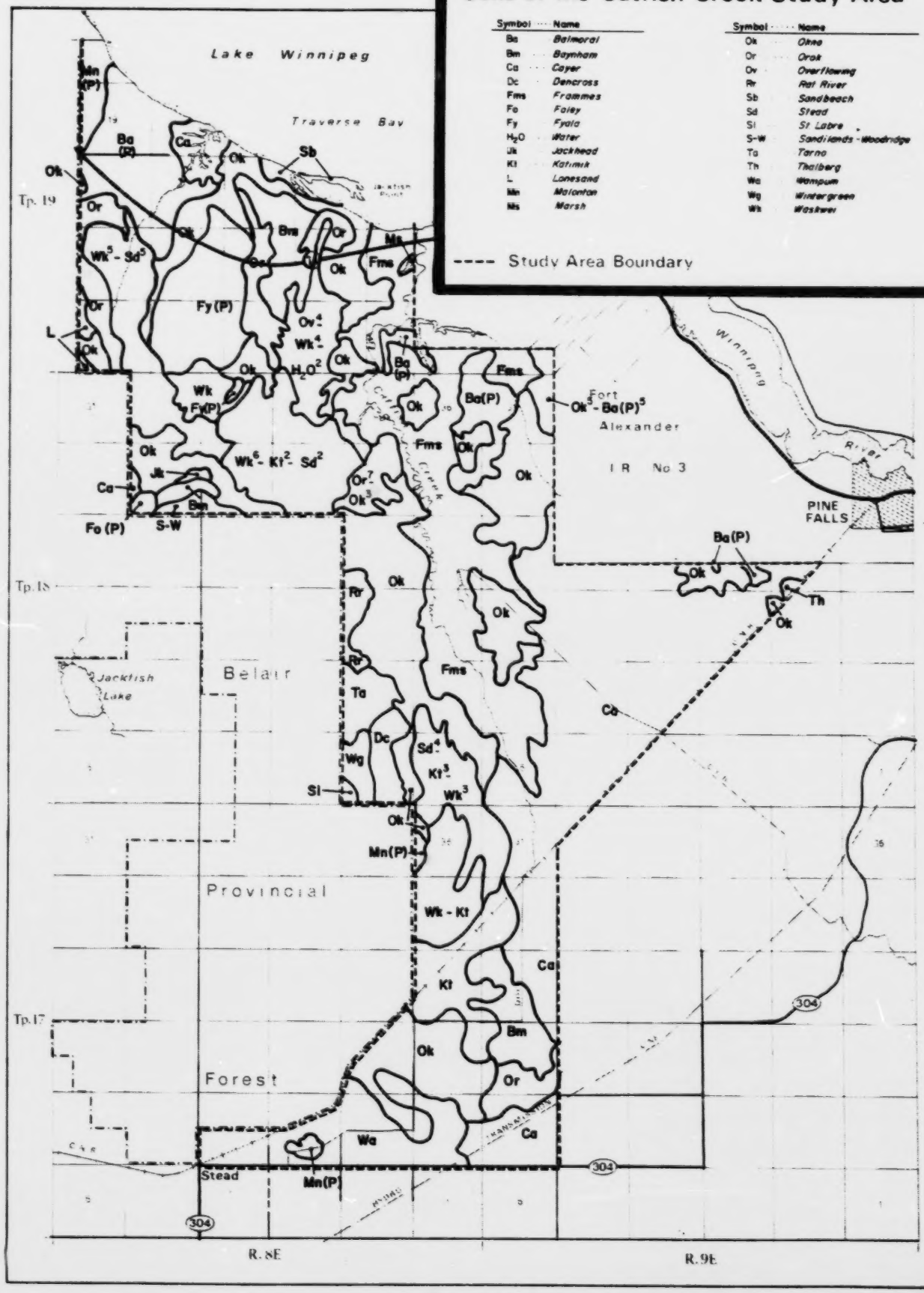
Climate

Annual mean temperatures in the vicinity are slightly lower than in Winnipeg. The mean monthly winter temperatures are below 0 degrees Celsius (32 degrees Fahrenheit) while mean summer temperatures are above 10 degrees Celsius (50 degrees Fahrenheit) (Smith and Ehrlich 1967:20). These temperature figures

Map 3.
Soils of the Catfish Creek Study Area

Symbol	Name
Ba	Balmoral
Bm	Baynham
Ca	Cayer
Dc	Dencross
Fms	Frammes
Fo	Foley
Fy	Fyala
H_2O	Water
Jk	Jackhead
Kt	Katimik
L	Lonesand
Mn	Malonton
Ms	Marsh
Ok	Ohno
Or	Orok
Ov	Overflowing
Rr	Rat River
Sb	Sandbeach
Sd	Stead
Sl	St Labre
S-W	Sandilands - Woodridge
Ta	Tarno
Th	Thalberg
Wa	Wampum
Wg	Wintergreen
Wk	Waskwei

---- Study Area Boundary



indicate the general average for the area, however, they do not characterize the variations in seasonal and daily temperatures. For example, the influence of large water bodies such as Lake Winnipeg and Traverse Bay may effectively retard the advance of spring causing delays to early growth, while the growing season may be lengthened due to the slow release of heat from these water masses in the fall. The area is also low lying and adjacent to elevated land areas of the Belair Provincial Forest. Spring growth may again be retarded, especially since the majority of the soils appear saturated and the water table is high. The land surface will take longer to thaw for spring growth and because of the underlying peat material of the area become susceptible to early-late frost. In the vicinity, the average frost free period ranges between 111 and 127 days (Smith and Ehrlich 1967:21).

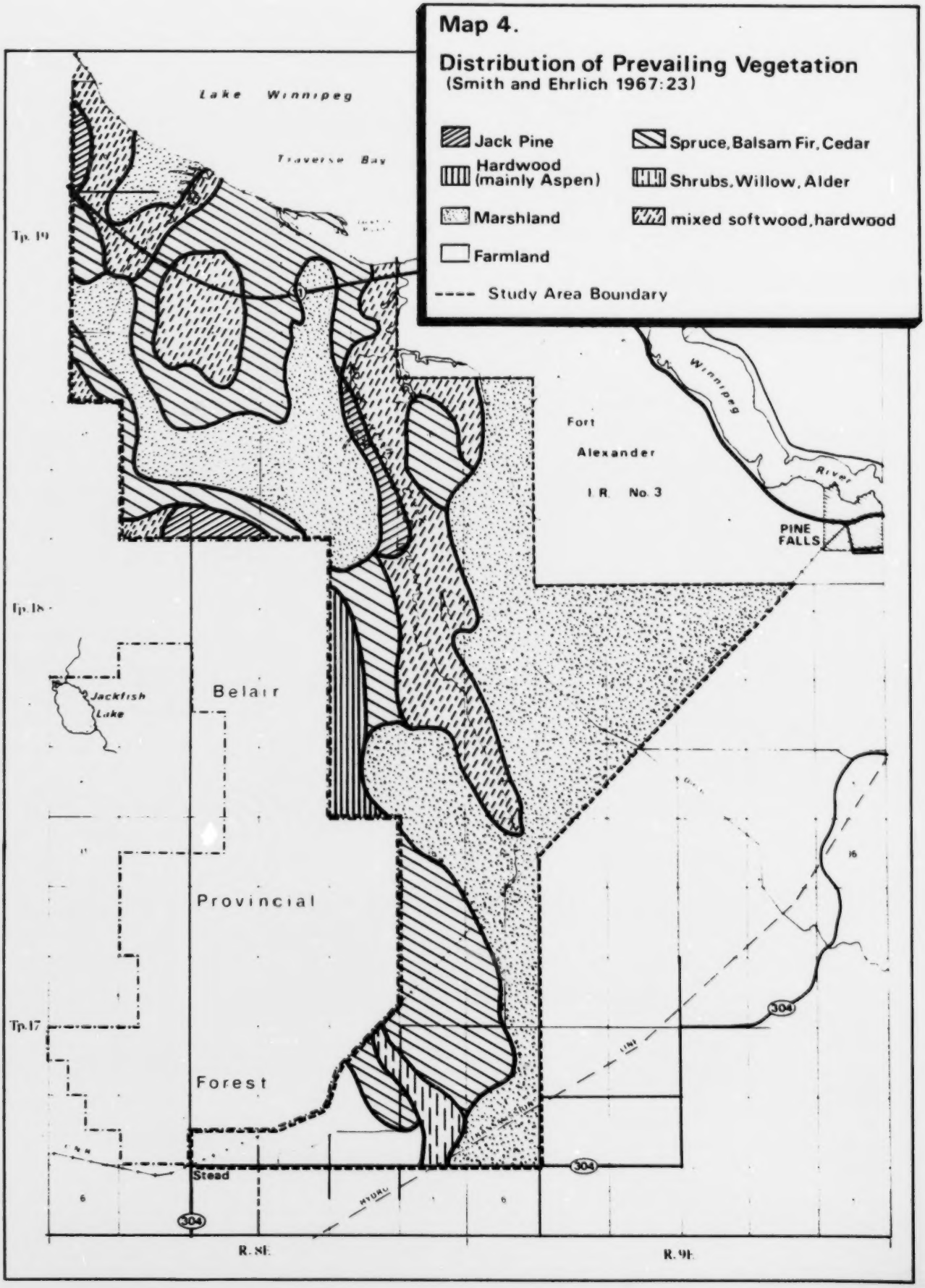
The mean yearly precipitation in the area is under 50.8 centimeters (20 inches). Significant to agriculture is the 38.1 centimeters (15 inches) of precipitation that falls during summer months. This is 75 percent of the yearly total precipitation.

Natural Vegetation

The association between natural vegetation and soil type in the Study Area is presented in Table 1 and illustrated in Map 4.

Table 1. Natural Vegetation and Soil Association in the Catfish Creek Study Area.

Soils	Natural Vegetation
Organic Soils	Black Spruce (treed Muskeg), tamarack, alder, willow, sedge, grasses and mosses.
Gleysolic Soils	Mixed woods - black ash, American elm. Manitoba maple, balsam, poplar, birch. Softwoods - white spruce, black spruce, balsam fir, tamarack.
Chernozemic Soils	Mixed woods - selected stands of black ash, American elm, Manitoba maple, balsam, poplar. Softwoods - white spruce, black spruce and balsam fir. Grass types are mixed.
Podzolic Soils	Jack Pine (80 percent), white birch (20 percent).


Map 4.
Distribution of Prevailing Vegetation
(Smith and Ehrlich 1967:23)
Jack Pine
Spruce, Balsam Fir, Cedar
Hardwood (mainly Aspen)
Shrubs, Willow, Alder
Marshland
mixed softwood, hardwood
Farmland
Study Area Boundary
Lake Winnipeg
Traverse Bay
Tp. 19
Fort Alexander I.R. No. 3
Winnipeg River
PINE FALLS
Tp. 18
Jackfish Lake
Belair
Provincial
Forest
Tp. 17
Stead
304
R. 8E.
R. 9E.

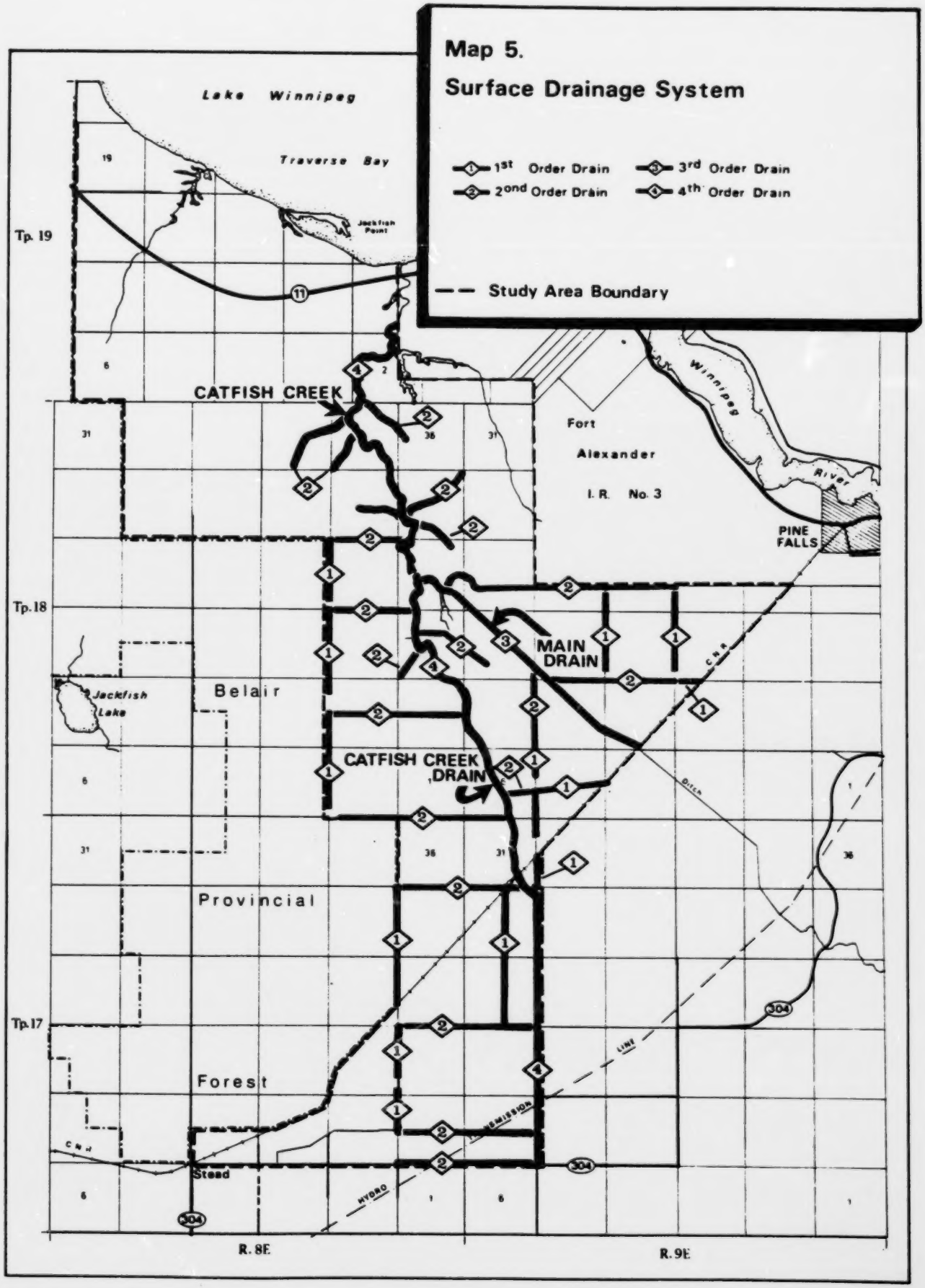
Infrastructure: Access and Drainage

Presently, two major highways service the area. Provincial Trunk Highway #11 runs through the northern portion of the Study Area, while PR #304 runs along the south and east boundary. A proposal is presently under consideration for a realignment of PR 304 through the Belair Provincial Forest.

Access in the Study Area beyond PTH #11 and PR #304 is generally poor and limited to seasonal forestry trails or ditch drain spoil banks.

For this area, the LGD of Alexander has advised that considerable dollars have already been spent towards servicing existing farmers. They further state that as roads and servicing costs are high in this area no further road upgrading is to occur within 5-9 years.

Drainage in the area is also poor (Map 5). The skeleton drainage network created in 1945-56, in conjunction with the then Catfish Creek Land Settlement Project, has seen little improvement to date. The original drains were excavated by draglines through the peat layers and to a limited extent into the underlying parent material. It was considered that in time the drains would be rebuilt particularly if cropping was anticipated. To date, the majority of the drains have not been maintained and, in fact, most drains are deteriorating. Only a few drains have been reclaimed and bisect into the main drain.


Map 5.
Surface Drainage System
1st Order Drain
2ond Order Drain
3rd Order Drain
4th Order Drain
Study Area Boundary
Lake Winnipeg
Traverse Bay
Jackfish Point
Tp. 19
CATFISH CREEK
Fort Alexander I. R. No. 3
Winnipeg River
PINE FALLS
Tp. 18
MAIN DRAIN
Belair
Jackfish Lake
CATFISH CREEK DRAIN
Provincial
Tp. 17
Forest
Stead
304
C.N.R.
HYDRO
LINE
R. 8E
R. 9E

SECTION 2. AGRICULTURE

Introduction

The L.G.D. of Alexander is an expanding agricultural area. According to the 1981 Census of Canada there were 122 census farmers in the L.G.D. On these farms there were 14,084 ha (34,776 acres) of cleared farm land. Agricultural land use is quite variable with both forage crops and cereal crops being important. In addition, in the Stead area, there is an important commercial sod industry. This industry has largely been developed due to the availability of quality Crown land in the area.

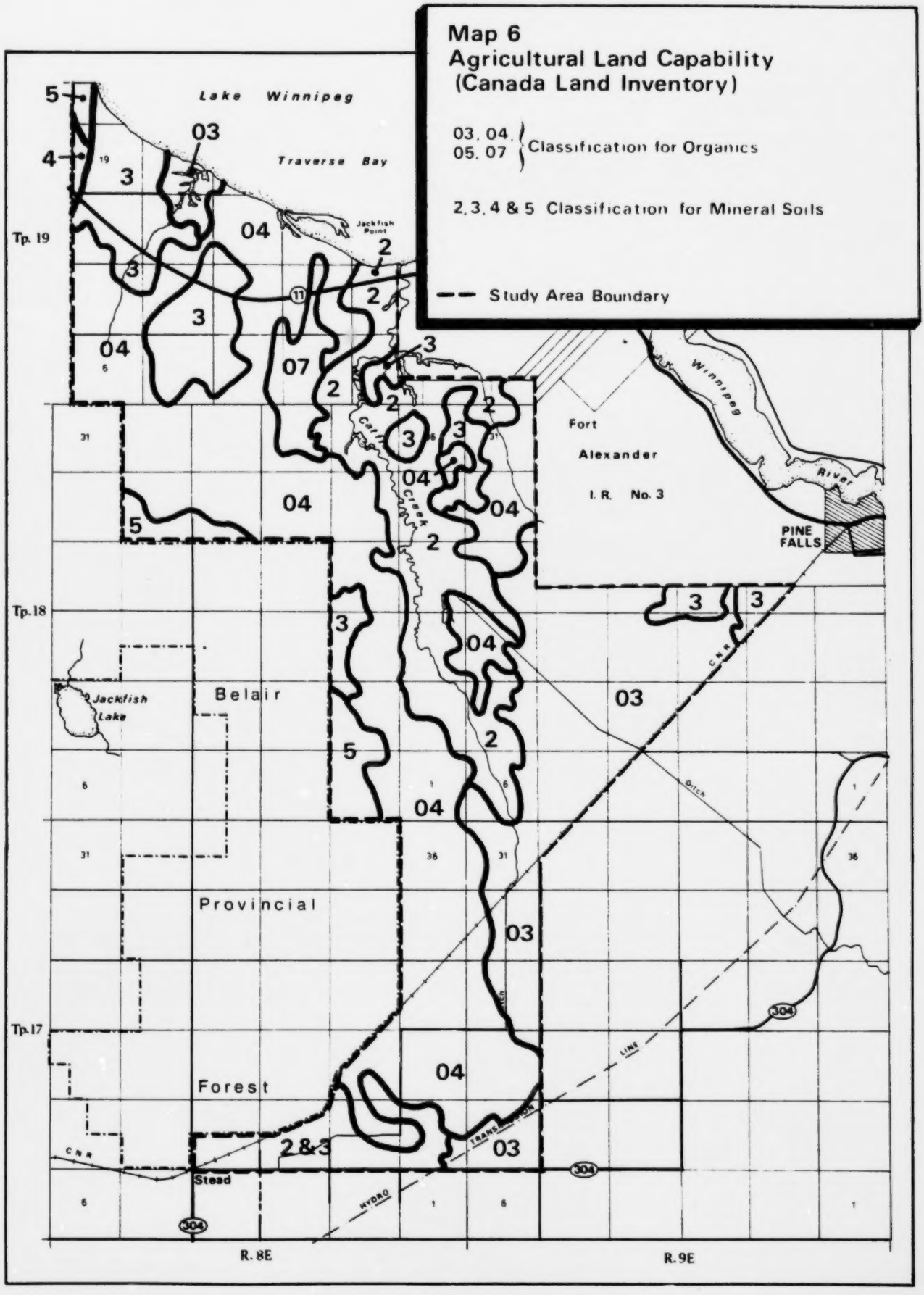
Soil Characteristics

Of the approximately 15,000 hectares (37,000 acres) of land in the Study Area, approximately 77 percent (11,500 ha) has been classified as organic.

While there are a number of types of organic soils based on such characteristics as degree of decomposition and type of material, one of the major distinctions in organic soils is the depth of organic material over mineral soils. Experience with organic soils in Manitoba has shown that shallow peat soils underlain by lacustrine clays are the best for agricultural production. Deep peat or shallow peats underlain by sandy materials are less desirable.

In organic soils, the major factors that determine their capability is the presence or absence of trees, the content of large wood fragments; the permeability, density, degree of decomposition, natural water table level, and the character of the underlying material. In order to be productive, organic soil must firstly be developed from its natural state. A prerequisite for organic soil development is drainage. Without removal of excess water, organic soils have little agricultural capability. In contrast, mineral soils can often be used without development inputs.

Of all the organic soils found in the Catfish Creek area, the soil type with the highest capability and lowest development difficulty are the Cayer (Ca) Series. The Stead (Sd) Series has good agricultural potential, but development difficulty is much higher (Map 6 and Tables 2 and 3). The other organic soils exhibit a lower agricultural capability and high development limitations.


Map 6
Agricultural Land Capability
(Canada Land Inventory)
03, 04, 05, 07 Classification for Organics
2, 3, 4 & 5 Classification for Mineral Soils
Study Area Boundary
Lake Winnipeg
Traverse Bay
Jackfish Point
Tp. 19
Tp. 18
Tp. 17
Fort Alexander I. R. No. 3
Winnipeg River
PINE FALLS
Belair
Jackfish Lake
Provincial Forest
Stead
CNR
HYDRO LINE
R. 8E
R. 9E

While the Catfish Creek area is dominantly organic soils, 22 percent of the area are mineral soils. A large portion of the mineral soils can be found on either side of Catfish Creek. These soils have been classified as Frammes (FMS) and they have been given a soil capability rating of 2w (Table 2). These soils can produce a wide range of crops. Another area of productive mineral soils can be found in the extreme NW part of the Study Area. These soils have been classified as Balmoral and Fyala peaty phases. With proper drainage both these soils can again produce excellent crops.

Table 2. Landform, vegetation and soil relationships in the Catfish Creek Study Area

Landform Class	Subclass	Type	Dominant Vegetation	Drainage	Parent Material	Soil Classification	Soil Capability Class
A. Bog	Flat	Sinkhole	Black Spruce	Poor	Deep (130 dm) Sphagnum Peat Over Mesic Peat	Waskwei (WK)	04
		Conglom-	Black Spruce Labrador-Tea & Mixed Mosses .	Poor	Same as Above	Baynham (BM)	04
	Sloping	Hummocky	Black Spruce-Labrador Tea	Poor	Shallow (40-130 cm)		04
					(a) Sphagnum Peat Over Mesic Peat Over Lacustrine Clay	Orok (OR)	04
B. Fen	Horizontal	Mesic	Sedges-Aquatic	Poor to Very Poor	Deep (130 cm) Mesic Fen Peat	Stead (ST)	03
		Hydric	Aquatic Mosses Sedges Bladderwort	Poor to Very Poor	Deep (130 cm) Mesic Peat With Water Layers	Overflowing (OV)	07
		Mesic	Sedges-Aquatic Mosses	Poor to Very Poor	Shallow (40-130 cm) Mesic Fen Peat Over Lacustrine Clay	Cayer (CA)	03
C. Swamp	Lowland	Hydric	Tamarack-Sedges Mixed Mosses	Very Poor	Deep (130 cm) Pear, With 15-60 cm of Sphagnum Peat Overlying Fen Peat	Katimik (KT)	05
D. Mineral Soils	Lacustrine		Poplar, Elm Sedges	Imperfect to Good	Lacustrine and Clays	Frammes	2
					Fine Sand Over Lacustrine Clay	Wampum (WA)	2
			Black Spruce Poplar	Poor	Less than 40 cm Peat Over Lacustrine Fine Sand Over Clay	Balmoral Peaty Phase [BA (P)]	3
			Black Spruce	Poor	Less than 40 cm Peat Over Lacustrine Clay	Fyala	3
E. Mineral Soils			Jack Pine, White Birch	Droughty	Standard Gravel	Wintergreen	5

Table 3. Area of major soil capability classes

Soil Capability Group		Total Land Area	
		Acres	Hectares
Mineral	2	4,700	1,900
	3	3,500	1,425
	5	1,200	486
Organic	03	8,000	3,250
	04	19,000	1,600
	07	800	325
	TOTAL	37,200	15,000

Production Potential

While the soils in the Catfish Creek area have little agricultural potential in their undeveloped state, when properly developed a large percentage of the area can produce a wide range of crops. The most productive soils are the Class 2 and 3 minerals. The Class 03 organic soils have slightly less potential followed by the Class 04 soils. The Class 2 and 3 mineral soils can be used for cereal or forage production. Wheat yields of 25-30 bushels per acre can be expected. The same range of crops cannot be grown on the organic soils, however, forage crops, commercial sod production and some cereals can be grown successfully.

Agricultural Suitability and Development Difficulty

With proper development such as land clearing and drainage, many of the soils in the Study Area have good potential for agricultural production. However, the level of development and therefore cost of development varies with different soil types. The mineral soils are generally thickly forested which will have to be harvested before agricultural development can occur. The organic soils which have formed in bogs and swamps also have a considerable amount of forest cover making development more difficult. Where the organic soils have been formed on a fen bog, there is little surface vegetation to impede clearing.

Excessive water is, however, the major limiting factor to the development of these soils. Extensive drainage improvements and road access will have to be installed before prpduction can take place.

Demand for Agricultural Land

Agriculture has continued to expand throughout the L.G.D. of Alexander. According to the 1961 Census of Canada, there was 10,638 ha (26,266 acres) of improved land in the L.G.D. By 1981, this had increased 32 percent to 14,084 ha (34,776 acres). In contrast, in the R.M. of Brokenhead which is immediately south of the L.G.D. of Alexander only showed an expansion of less than two percent during the same period.

Much of the growth in the L.G.D. of Alexander has taken place in the Stead area, which is also in the Catfish Creek watershed. This area has been attractive to farmers as the soils are of good quality, development costs have been relatively low as the pioneer drainage infrastructure was established by the Province. There are a number of young aggressive farmers in the area that wish to expand their farming operations.

As agriculture moves north more and more Crown land has been leased for agriculture. In total, there has been 52 quarter sections of Crown land advertised in the Catfish Creek and surrounding area since 1978 (Table 4). The level of demand has dropped in 1982-83 because of economic conditions and the need for some infrastructure which requires cooperation from various levels of government. Demand can be expected to rise if the necessary infrastructures are put into place and when the economy strengthens.

Table 4. Lands advertised in townships 17 & 18 in range 8 & 9 E.P.M.

Advertising Year	Total Quarter Sections or Portion Thereof[2]	Advertising Closing Date
1977-1978	0	Sept. 23, 1977
	0	Oct. 28, 1977
	0	Dec. 2, 1977
	0	Jan. 13, 1978
	0	Feb. 24, 1978
1978-1979	0	Sept. 22, 1978
	0	Oct. 27, 1978
	0	Dec. 8, 1978
	6	Jan. 19, 1979
	7	Mar. 2, 1979
1979-1980	0	Sept. 28, 1979
	1	Nov. 2, 1979
	0	Dec. 14, 1979
	0	Jan. 25, 1980
	14	Feb. 29, 1980
1980-1981	1	Oct. 3, 1980
	0	Nov. 7, 1980
	0	Dec. 19, 1980
	8	Jan. 30, 1981
	2	Mar. 6, 1981
1981-1982	1	Oct. 9, 1981
	0	Nov. 13, 1981
	0	Dec. 18, 1981
	9	Jan. 29, 1982
	1	Mar. 5, 1982
1982-1983	0	Oct. 8, 1982
	0	Nov. 12, 1982
	1	Dec. 17, 1982
	1	Jan. 28, 1983
	0	Mar. 4, 1983
TOTAL	52	

1. Agricultural Crown Lands, Department of Agriculture records.
2. The majority of parcels advertised were 160 acres in size.

Area with Potential for Agricultural Expansion

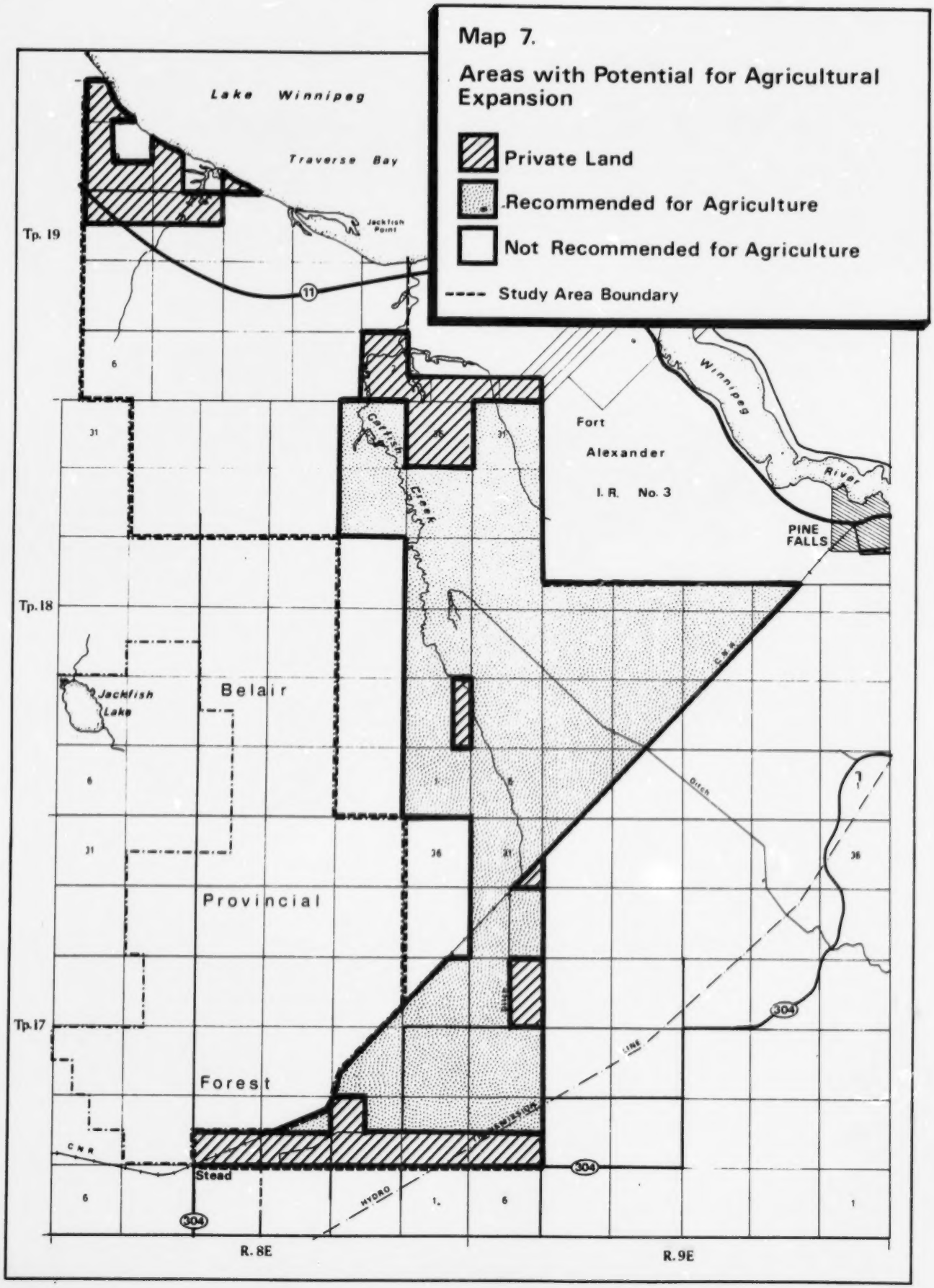
The area recommended to be considered for agricultural use contains approximately 5,875 ha of land (14,500 acres) or 39 percent of the Study Area (Map 7). This area is based on soil capability and proximity to existing agricultural operations.

The balance of the Study Area is not considered essential for agriculture as the soils are either of lower quality or in the case of the mineral soils in the extreme northwest show poor demand for agriculture due to their isolation. To utilize the soils in the extreme northwest of the study area; farmers would need to travel a considerable distance along P.T.H. #11. Because of the physical relief and the extreme soil conditions that lie between the southern parts of the Study Area and this northwestern area, the logical progression of agriculture should be from the south and east.

Potential Concerns and Issues

The primary concern in the development of this area is the staging of development. In order to develop the area to its agricultural potential, drainage improvements and road access must be in place.

The development of access and generally the development of drainage infrastructure is the responsibility of the local municipal government (see also page 47). In this regard joint co-operation between the Province of Manitoba, the LGD of Alexander and the Winnipeg River Planning District will be required if the most efficient and fiscally sound infrastructure network is to be installed.


Map 7.
Areas with Potential for Agricultural Expansion
Private Land
Recommended for Agriculture
Not Recommended for Agriculture
Study Area Boundary
Lake Winnipeg
Traverse Bay
Jackfish Point
Tp. 19
Tp. 18
Tp. 17
Fort Alexander I. R. No. 3
Winnipeg River
PINE FALLS
Catfish Creek
Belair
Jackfish Lake
Provincial Forest
C.N.R.
Stead
HYDRO LINE
Ditch
304
11
R. 8E
R. 9E

SECTION 3. FISHERIES

Introduction

The existing fisheries resource within the Catfish Creek Study Area stretches from Traverse Bay to the upper reaches of Catfish Creek. The principal concern is the protection of the commercial fishery in Traverse Bay and the existing fish populations within the waterways of the Study Area (Map 8).

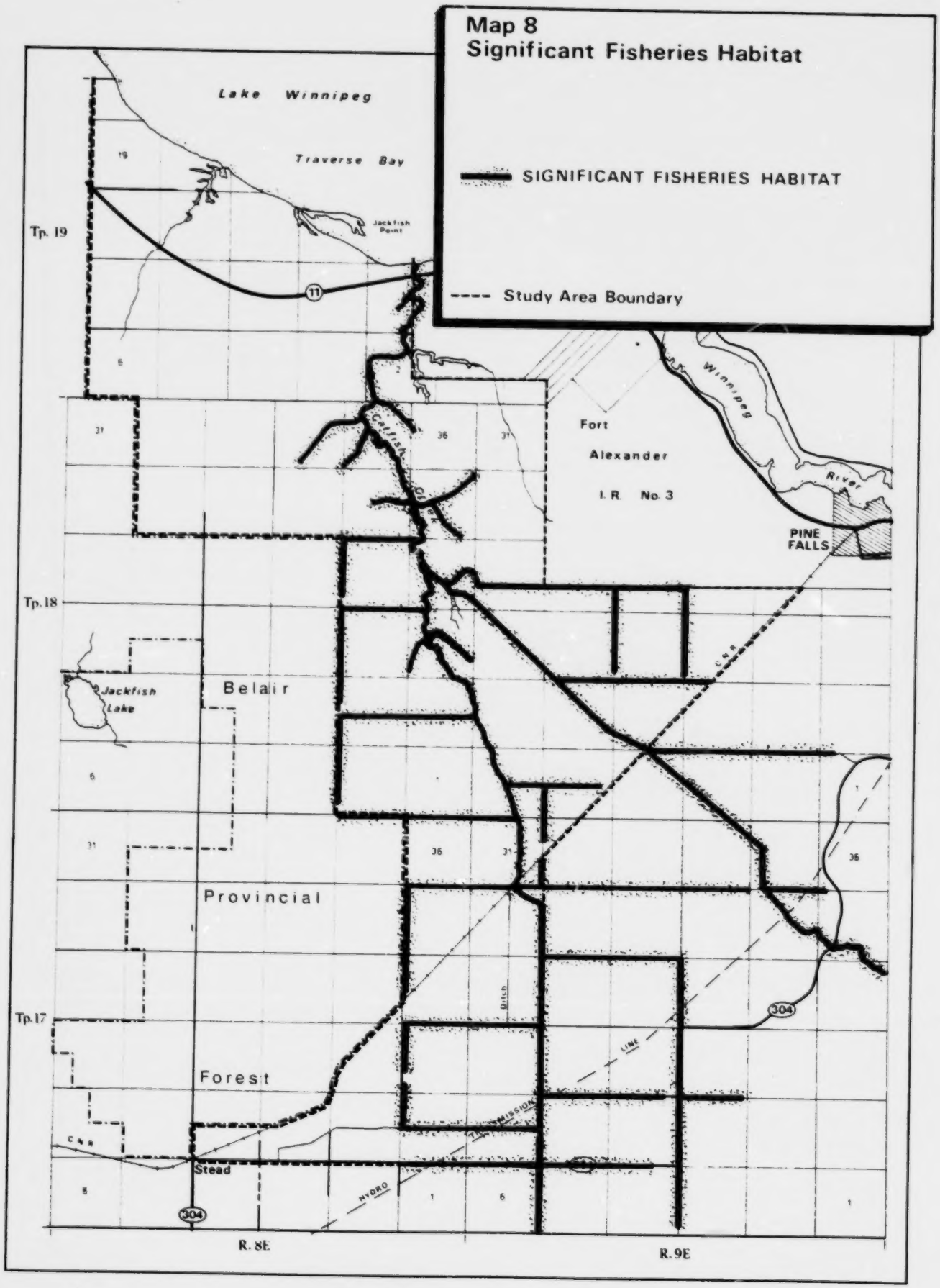
There is a two season commercial fishery season which has an annual harvest of about 1.9 m kg. The major commercial species includes walleye, sauger, and pike. Of lesser commercial significance are perch, freshwater drum, sturgeon, tullibee, maria, mullets, goldeye, catfish, and bullheads.

Recreationally, pike, walleye, sauger, perch, catfish, goldeye, and sturgeon have a relative importance to the area.

Areas of Existing Prime Fish Habitat

The Traverse Bay area in particular, is known as a very good fishing and spawning area for walleye, pike and possibly sturgeon which are present at the mouth of and upstream of Catfish Creek.

Catfish Creek, is also considered significant as a spawning and nursery area. Although water levels may be very low in summer, the drainage system is used extensively each spring. Beaver dams exist in the upper reaches but spring water levels are generally considered adequate to allow fish passage. The general movement of fish up Catfish Creek has been affected by developments to this date. The channelization that has occurred in the past has altered the runoff patterns affecting both the peak and duration of flow. This has, no doubt, had significant negative impact on the success of Catfish Creek as a spawning and nursery area. Many of these drainage works are now non-operable and the situation has stabilized. A reconstruction program would reverse this and would be most undesirable.


Map 8
Significant Fisheries Habitat
SIGNIFICANT FISHERIES HABITAT
Study Area Boundary
Lake Winnipeg
Traverse Bay
Jackfish Point
Tp. 19
11
Catfish Creek
Fort Alexander I.R. No. 3
Winnipeg River
PINE FALLS
Tp. 18
Jackfish Lake
Belair
Provincial
Forest
Tp. 17
304
Stead
C.N.R.
HYDRO TRANSMISSION LINE
Ditch
R. 8E
R. 9E

Access and Buffers

At the present time, public access to much of the important spawning and nursery areas is very limited. Any new construction of roads would open these areas to increase public use to the possible detriment of the fish resource. Any crossings and ditches would have direct impact on success of migration and spawning.

Fertilizers, pesticides and herbicides would all be utilized in much larger amounts and no doubt would create higher concentrations of contaminates into the drains and therefore, into the spawning and nursery areas.

The burning of peat overburden as a means to expose mineral soils is also a questionable practise from a fisheries environment perspective. If this occurs in areas where runoff is allowed to enter the spawning and nursery areas, very high nutrient loading could cause severe plankton blooms and possible summer or winter kill situations during periods of low flow. All activities that increase the speed of runoff, and may contribute to chemical and sediment loading, will have direct negative effects on fisheries resource.

Measures to limit nutrient loading and sediment inflow must be encouraged with land clearing, cultivation and development to the water's edge prohibited. Enrichment of natural waters (organic loading or siltation) as a result of agricultural run-off from all lands should be discouraged. A buffer should be established along each side of the significant drains and waterways. If the land is to be used for haying only, then buffers are not required. If the area is used for grazing, the waterways must be fenced off to restrict cattle access and no cultivation or grazing should be allowed within the buffer area.

Concerns and Issues

The outstanding concern is that the quality of water and the integrity of existing fisheries habitat be maintained so that stocks of commercially valuable fish will continue to flourish.

Improper agricultural or forestry practices could lead to increased siltation of the streams. Siltation as a result of increased drainage and land clearing has a detrimental effect on water quality and on fish habitat, particularly the spawning habitat. Agricultural activity could also result in nutrient loading and enrichment of water from fertilizer applications. Both herbicides and insecticides, when used in the agricultural or forestry activities, must be carefully administered as the improper application of the chemicals could be detrimental to the water quality. Presently, the water quality concerning the local fisheries habitat is in a good condition. It is estimated that over 75 percent of these areas are unaffected by either siltation, nutrient loading or the misuse of insecticides and herbicides.

SECTION 4. FORESTRY

Introduction

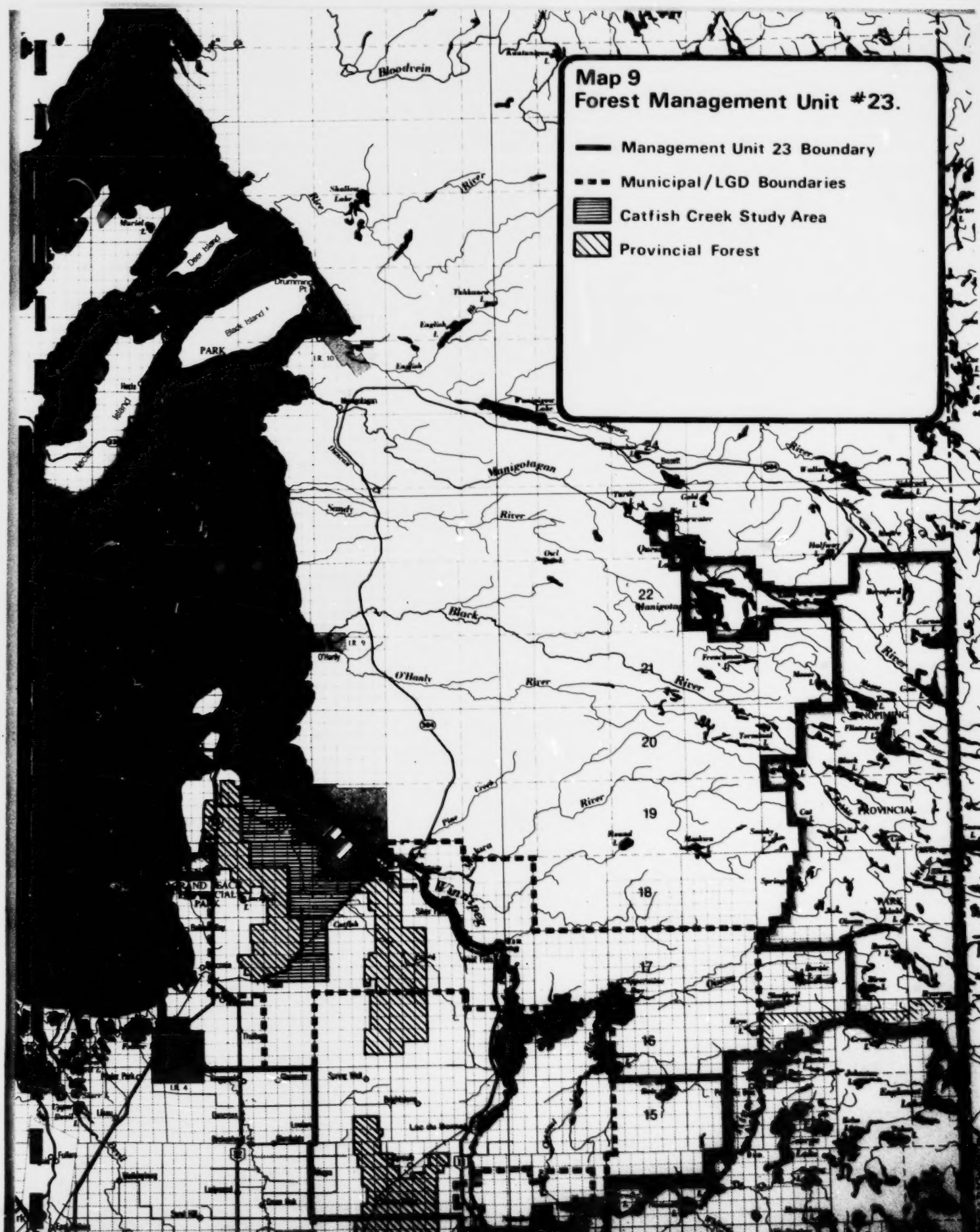
Manitoba's forest resources are very significant to the Provincial economy. In 1980, the production and manufacture of forest products employed 5,000 Manitobans directly and another 5,000 indirectly. Benefits to Manitoba included: i) cash royalties for stumpage, ii) direct employment in logging, sawing, and newsprint industries, iii) indirect employment in secondary industry, reforestation, and fire suppression, iv) road and trail development for recreational and industrial purposes, v) value added to local, provincial, and national businesses in the supply and services sectors, vi) tax base for all levels of government as well as the balance of payments consideration associated with pulp and paper exports.

The Catfish Creek Study Area is located within FMU #23. In 1970, the annual allowable cut (AAC) was calculated for Forest Management Unit (FMU) #23 (Map 9). This calculation determined the volume of timber that could be harvested annually from this land unit in accordance with the "sustained yield" principle of forest management.

The industries that traditionally harvested timber within the FMU were then regulated so that each operation was allowed to harvest a specific portion of the AAC. This regulation was necessary to prevent overharvesting that could result in future timber supply shortages. However, during the subsequent 14 years, provincial land use decisions have turned over a significant portion of FMU 23's forested lands to other land uses, primarily agriculture. The consequence being similar and even more dramatic than overcutting. The land base capable of growing future forests is reduced, thereby limiting the potential timber harvest of the future. In this respect then, the designation of the Catfish Creek Project Area to long-term forest tenure is not an addition to timber supplies, but rather a security measure to guarantee timber supplies that are already committed. Any loss of this timber supply directly jeopardizes existing jobs and businesses.

Statistics Canada has calculated a 32 percent increase in agriculturally developed land in the L.G.D. of Alexander since 1961. This L.G.D. is the primary source of timber in the FMU. In fact, most of the land developed during this period was formerly timbered with black spruce. This is particularly significant considering the proximity of the Abitibi-Price mill in Pine Falls which requires 80 percent of its wood from the spruce species by virtue of the groundwood newsprint process that it utilizes.

A significant reduction in the AAC of black spruce is expected when the next inventory is calculated in 1986. This reduction will have to be passed on to the industry in the form of smaller cutting allotments so that the forest resource is not further exploited. This will mean cutbacks in the industry, most of which will be realized in the local communities of Pine Falls and Lac du Bonnet.


Map 9
Forest Management Unit #23.
Management Unit 23 Boundary
Municipal/LGD Boundaries
Catfish Creek Study Area
Provincial Forest
Bloodvein
PARK
Manigotagan
River
Black
O'Hanly
Winnipeg
PROVINCIAL
22
21
20
19
18
17
16
15

The Catfish Creek Study Area represents 20 percent of the forest land that is allocated to long term forestry use in FMU 23. If the tenure of this land is not secured via provincial forest designation, then the total loss forest land in FMU 23 since 1970 will approach 45 percent. There is no doubt that this loss would be significant to an established industry that already utilizes virtually all the supply that is available. The loss of the Catfish Creek Area from long-term forest use would cause extreme hardships for the timber producers themselves, the mills they supply, local suppliers, and other spin-off beneficiaries that provide the goods and services necessary to stimulate the local economy.

In addition, there has been a recent development in the utilization of "hard" hardwoods, particularly black ash, elem, and maple. The Study Area is the principal source of black ash in FMU 23. A large forest products company based in Winnipeg has made representation to the Forestry Branch for the long term utilization, protection and management of the resource. The company employs 48 full and part-time employees and has capital investments well over a million dollars including two sawmills.

It should also be recognized that wildlife, fishery, recreation, and forestry management objectives for the study area are compatible. For example, it is proposed that winter only access be considered for most of the Catfish basin, thereby reducing many of the adverse wildlife interactions commonly associated with resource development. It is often the case that the spatial arrangement between lands important to forestry, wildlife, and other resources are so closely intermingled that they cannot be separated by legal description. Under a provincial forest designation, integrated resource management decisions can be implemented and effectively enforced.

Present Economic Benefits - FMU 23

Based upon Statistics Canada's value of production figures, the gross value of timber supply from FMU 23 is approximately $9 million annually (Table 5). Most of these benefits are realized within the local communities of Pine Falls and Lac du Bonnet where sawmilling and newsprint manufacture takes place.

The analysis of the economic benefits of FMU 23 must be qualified. The values represent full utilization of the annual allowable cut for both the hardwood and softwood components. However, the actual 1980-81 production level was approximately 85 percent of the annual allowable cut for FMU 23 (Table 6).

Similarly, the Catfish Creek Study Area represents only 20 percent of the actual forest land base of FMU 23. Assuming a homogeneous distribution throughout the management unit, the value of the forest resource in the Study area would be 20 percent as presented in Table 5.

Table 5. Estimated Annual Economic Potential of the Forest Resource of FMU #23 and the Catfish Creek Study Area: Full Utilization

Economic Indicator[1]	Logging		Primary Manufacture		Total	
	FMU #23	Study Area	FMU #23	Study Area	FMU #23	Study Area
Gross Value of Shipments	$2,179,000	$436,000	$6,781,000	$1,356,000	$8,960,000	$1,792,00
Gross Provincial Product	973,000	195,000	2,819,000	564,000	3,793,000	759,000
Provincial Receipts	97,000	19,000	282,000	56,000	379,000	75,000
Employment Man Years	26	5	56	11	82	16

[1] See Appendix 2 for additional explanation.

Table 6. Actual Production, Forest Management Unit #23, 1980-1981

	Harvested M^3	AAC M^3	Percent Cut
Softwood	27,720	32,770	84.6%
Hardwood	29,320	34,370	85.3%
TOTAL	57,040	67,140	85.0%

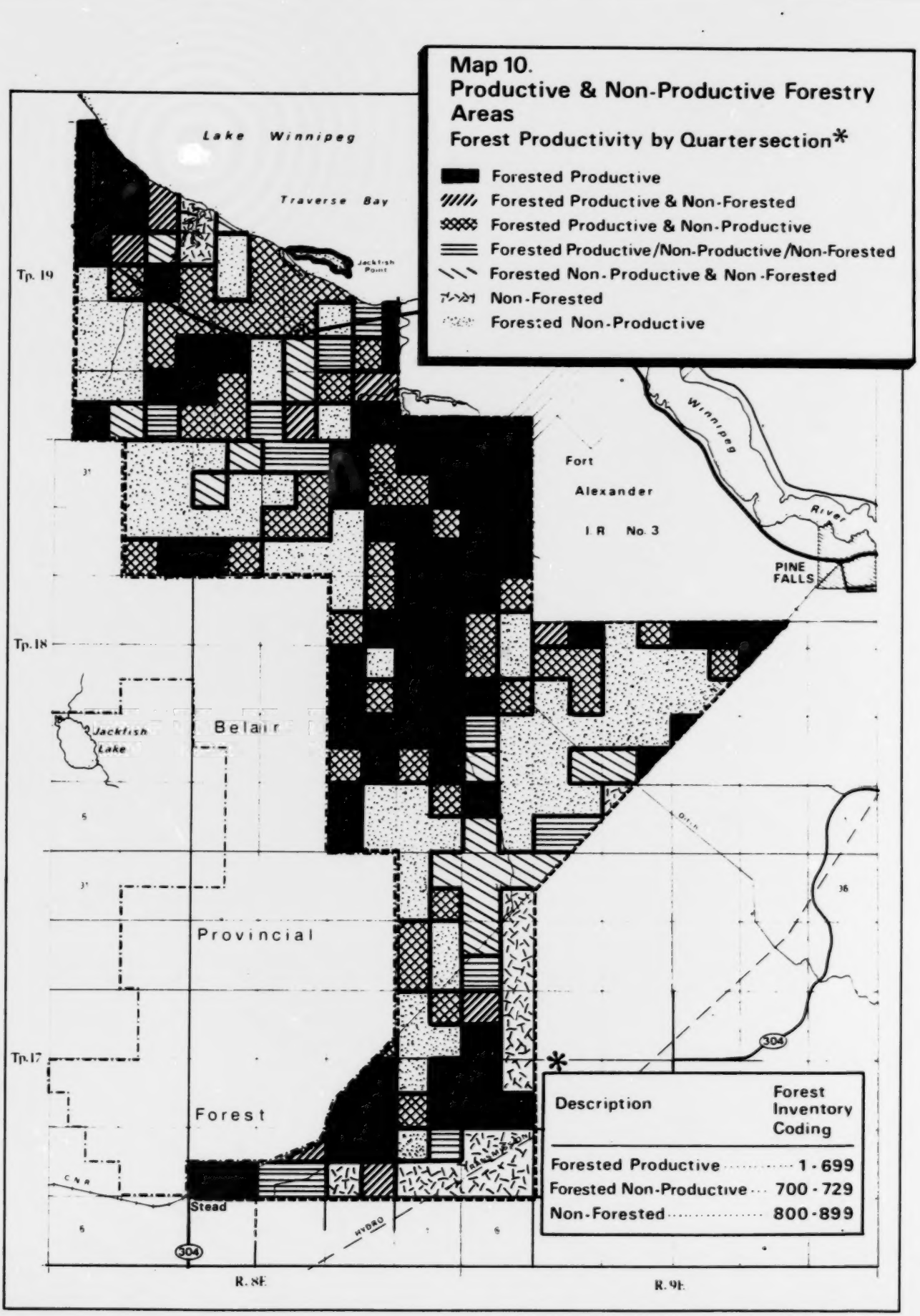
Existing Land Capability and Suitability

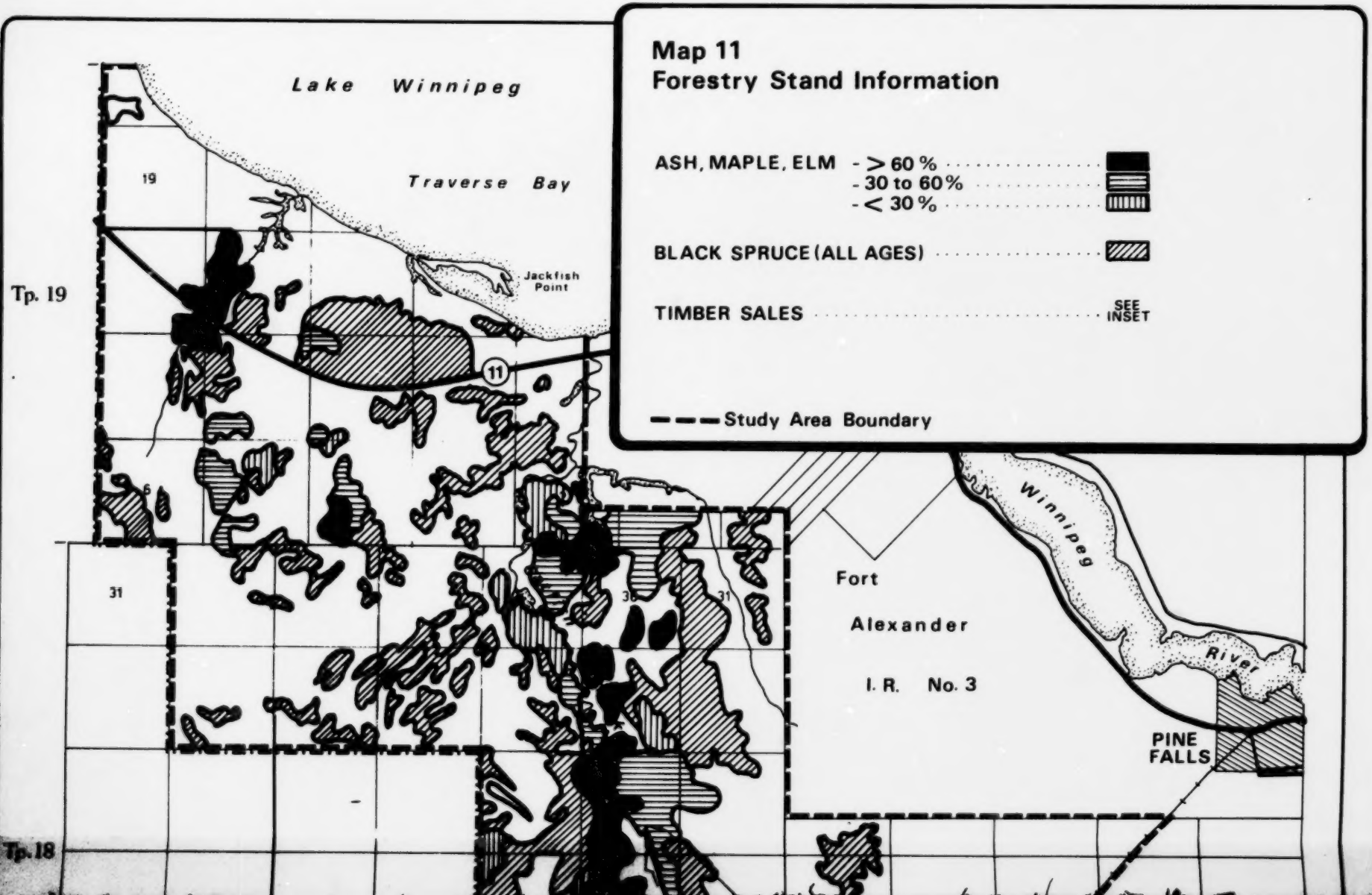
Capability

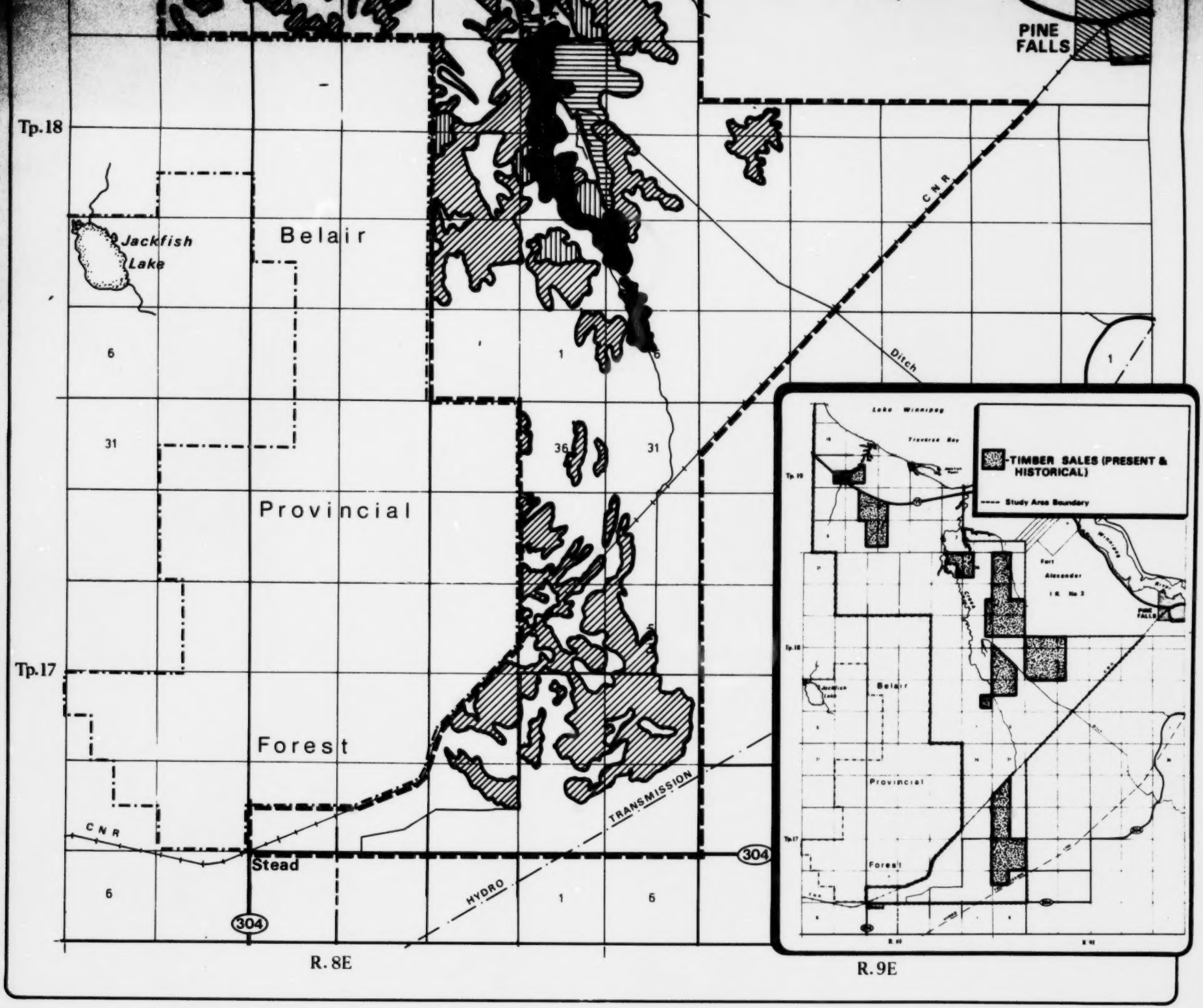
Approximately 60 percent of the study area is productive forest land as determined by the Manitoba Forest Inventory System (Map 10 & 11). Approximately 40 percent is "non-productive forest land" as it currently exists. In many instances, however, this non-productive land is so finely intermixed with productive land as to be almost inseparable with regard to development. Particularly with respect to the natural relationships of wildlife and other environmental values.

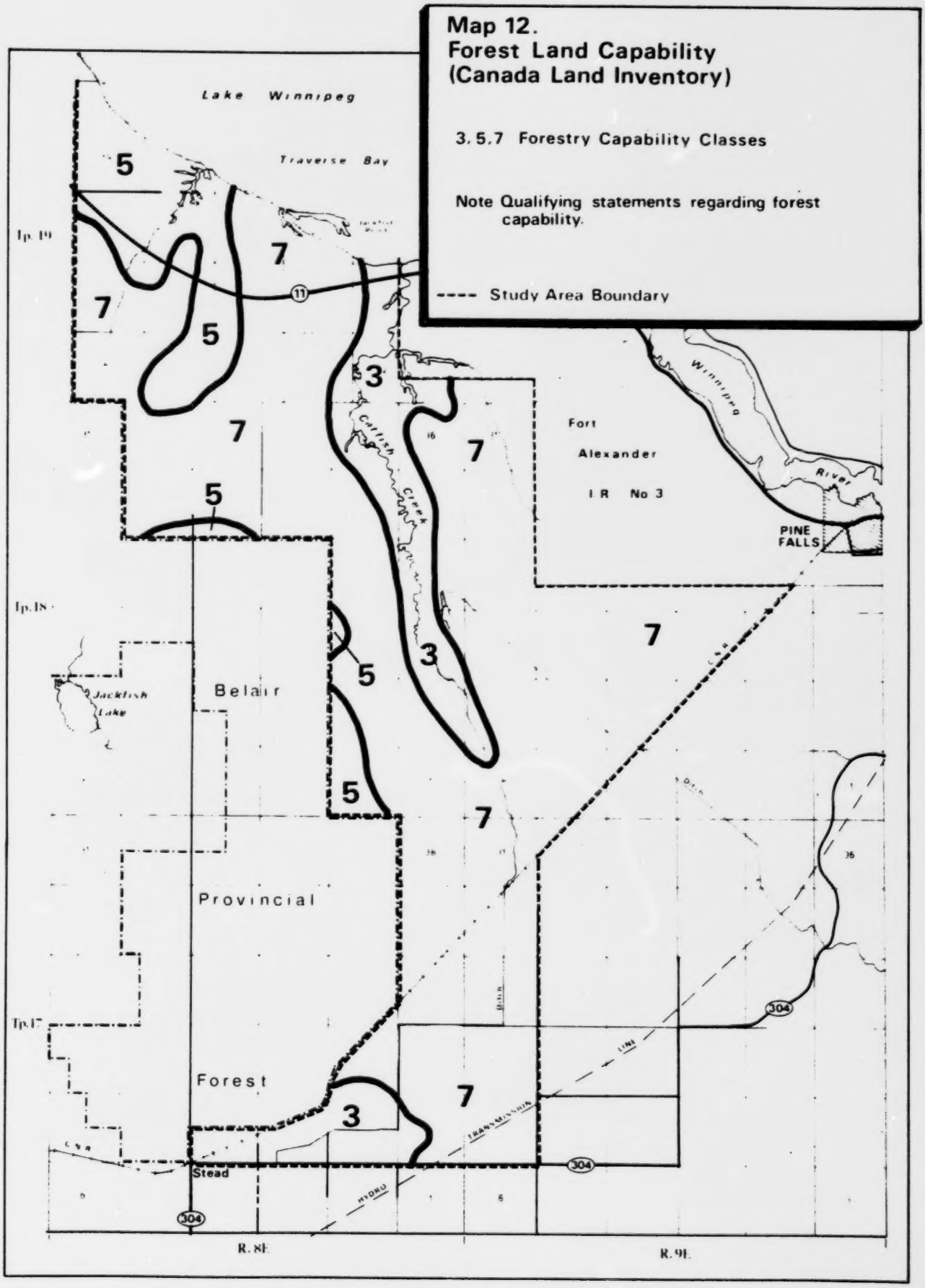
Composition:		
	spruce/fir	25%
	hardwood	20%
	mixed wood	10%
	tamarack/pine	5%

The Canada Land Inventory for forest capability in the area is illustrated in Map 12. The existing CLI classifications do not take into account land improvement, particularly drainage of organic soils from a forestry perspective. Minimal drainage infrastructure would greatly increase much of the land in this area for timber production. The map as presented is also considered to be an understatement of the value of the area to the forest industry. Because of the proximity to an existing paper mill, the significance of the capability to produce timber is greatly increased.


Map 10.
Productive & Non-Productive Forestry Areas
Forest Productivity by Quartersection*
Forested Productive
Forested Productive & Non-Forested
Forested Productive & Non-Productive
Forested Productive/Non-Productive/Non-Forested
Forested Non-Productive & Non-Forested
Non-Forested
Forested Non-Productive
Lake Winnipeg
Traverse Bay
Jackfish Point
Tp. 19
Winnipeg River
Fort Alexander I.R. No. 3
PINE FALLS
Tp. 18
Jackfish Lake
Belair
Provincial
Forest
Tp. 17
CNR
Stead
HYDRO
304
R. 8E
R. 9E
*
Description
Forest Inventory Coding
Forested Productive ..... 1 - 699
Forested Non-Productive ... 700 - 729
Non-Forested ..... 800 - 899


Map 11
Forestry Stand Information
ASH, MAPLE, ELM - > 60 %
- 30 to 60 %
- < 30 %
BLACK SPRUCE (ALL AGES)
TIMBER SALES
SEE INSET
Study Area Boundary
Lake Winnipeg
Traverse Bay
Jackfish Point
Tp. 19
Tp. 18
19
31
36
31
11
Fort Alexander I. R. No. 3
Winnipeg River
PINE FALLS


PINE FALLS
Tp.18
Jackfish Lake
Belair
C N R
Ditch
6
1
31
36
31
Provincial
Tp.17
Forest
TRANSMISSION
C N R
Stead
304
HYDRO
6
1
6
304
R. 8E
TIMBER SALES (PRESENT & HISTORICAL)
Study Area Boundary
Lake Winnipeg
Traverse Bay
Tp.19
Tp.18
Tp.17
Belair
Provincial
Forest
R.8E
R.9E


Map 12.
Forest Land Capability
(Canada Land Inventory)
3.5.7 Forestry Capability Classes
Note Qualifying statements regarding forest capability.
---- Study Area Boundary
Lake Winnipeg
Traverse Bay
Tp. 19
Tp.18
Tp.17
Fort Alexander I R No 3
Winnipeg River
PINE FALLS
Catfish Creek
Jackfish Lake
Belair
Provincial
Forest
Stead
CNR
HYDRO
TRANSMISSION LINE
304
11
R.8E.
R.9E.
5
7
3

Suitability

Primarily due to its proximity to Pine Falls and Winnipeg, the study area as it exists is of considerable economic value to Abitibi-Price, Finmac Lumber Ltd., and other industries as well as their spin-off beneficiaries. The direct cost to Manitoba in realizing this potential is negligible as the forest companies absorb most of the development costs without subsidies from government. Their costs are carried forward directly to the consumer and the benefits are realized throughout the local, provincial, and national economies by virtue of the money multiplier.

Future Development Potential

The study area has the potential to realize upwards of 80 percent of its area as productive forest land. For AAC considerations, this intensity is not considered necessary at this point in time. However, the land unit itself could conceivably be managed to either hard or softwoods depending on future demand. Such development would incur considerable costs. A drainage network, followed by intensive afforestation techniques, would be necessary. It is possible that the industry could contribute substantially to this development in return for harvesting considerations under agreements such as Forest Management Licences.

At present, it is debatable whether the net benefits of intensified forest management could outweigh the no cost benefits associated with forest extraction on these lands in their present state. That is, under current management strategies, (i.e. no development costs) there are many multiple use benefits that can be realized without the necessity of crop-like forest management practises.

Present and Future Demand

Softwood

Demand for spruce and pine from FMU #23 is sufficient to utilize the entire AAC for these species. This is primarily due to the proximity of the news-print mill and pulpwood contract commitments to local producers. At the present time however, a large portion of this volume is being allocated from lands under agricultural disposition. Therefore, short term surpluses will occur for three to five years, by which time all agriculture lands in FMU 23 will be totally depleted of Crown timber.

An annual increase in demand for wood products of 2 to 3 percent is projected. This is probably underestimated in areas adjacent to mills and areas having specialty forest products. All future volume commitments will have to be filled from Provincial Forest lands only, and these lands must be capable of sustaining current production levels. The Provincial Forest lands, as they exist today, are unable to support these production levels. Therefore the Provincial Forests must be expanded to accommodate the industry's needs. If this is not accomplished, existing industry will suffer the consequences.

Hard Hardwoods, Elm, Ash, Maple, Birch

The presence of the "hard" hardwood species, Fraxinus nigra (black ash), Ulmus americanum (American Elm), and Acer negundo (Manitoba Maple) along the Jackfish and Catfish Creeks are the most significant natural stands for harvesting of their kind in FMU #23. Current prices between $800 and $1,200/MFBM for select lumber are three to five times the value of traditional white spruce lumber.

The AAC volumes for these species are under great pressure from local sawmills, primarily for furniture grade material to replace Red Oak imports. Existing inventories are unable to meet the demand. At a time when the industry requires increased AAC, agricultural expansion threatens to decrease it.

Other Hardwoods - Aspen

Annually, between 50 and 80 percent of "other hardwood" AAC is utilized. Welclad Industries, Building Products Ltd., and various lumber and fuelwood producers are the major users. Upwards of 3,000 "own use" permits a year are administered from FMU #23. Reductions in the AAC would reduce the amounts of fuelwood and other forest products that local farmers and townspeople harvest for energy supplements and farm related purposes. Biomass and other technological improvements will make those stands located in close proximity to markets, progressively more valuable in the years to come. This is well documented in the eastern provinces of Canada.

Concerns and Issues

Agricultural expansion, intensive urban and recreational developments in the forest frontier poses increased risks to forest resources. Certain agricultural development practices, increased public access and general development often increase the incident of fire. While forests are required to maintain the forest industry, they also lessen flood risk by controlling precipitation run-off and retarding snow melt, providing erosion control, and wildlife habitat. If these values are to be maintained and enhanced, caution must be exercised in the use and management of lands adjacent to timberland to prevent destruction by wildfires and to lessen the expenditure of public funds for forest fire prevention and fire fighting.

SECTION 5. OUTDOOR RECREATION

The Catfish Creek corridor is of significance to outdoor recreation. Four major recreational uses occur and are identified for this area. They are recreational hunting, canoeing, wildlife viewing, and interpretation.

There are no Class 1, 2, or 3 CLI outdoor recreation lands in the Study Area, however, the Catfish Creek area is classed 60E but is believed to be under rated. From a recreational standpoint it is believed that the rating should be upgraded to a Class 4 with sub-classes including A, C, O, Q, and W (Table 7, Map 13).

Table 7. Canada Land Inventory Catfish Creek Upgraded Classification for Outdoor Recreation

Class	Description
Class 4	- Having a moderate capability for outdoor recreation
Sub Class A	- Access to water, opportunity to viewing and sport fishing and angling.
C	- Land with direct access to water, canoeing.
O	- Viewing of upland wildlife.
Q	- Area exhibiting variety in topography and land and water relationships. Outdoor recreation is enhanced - aesthetic appreciation of the area is noticed.
W	- Viewing of wetland wildlife.

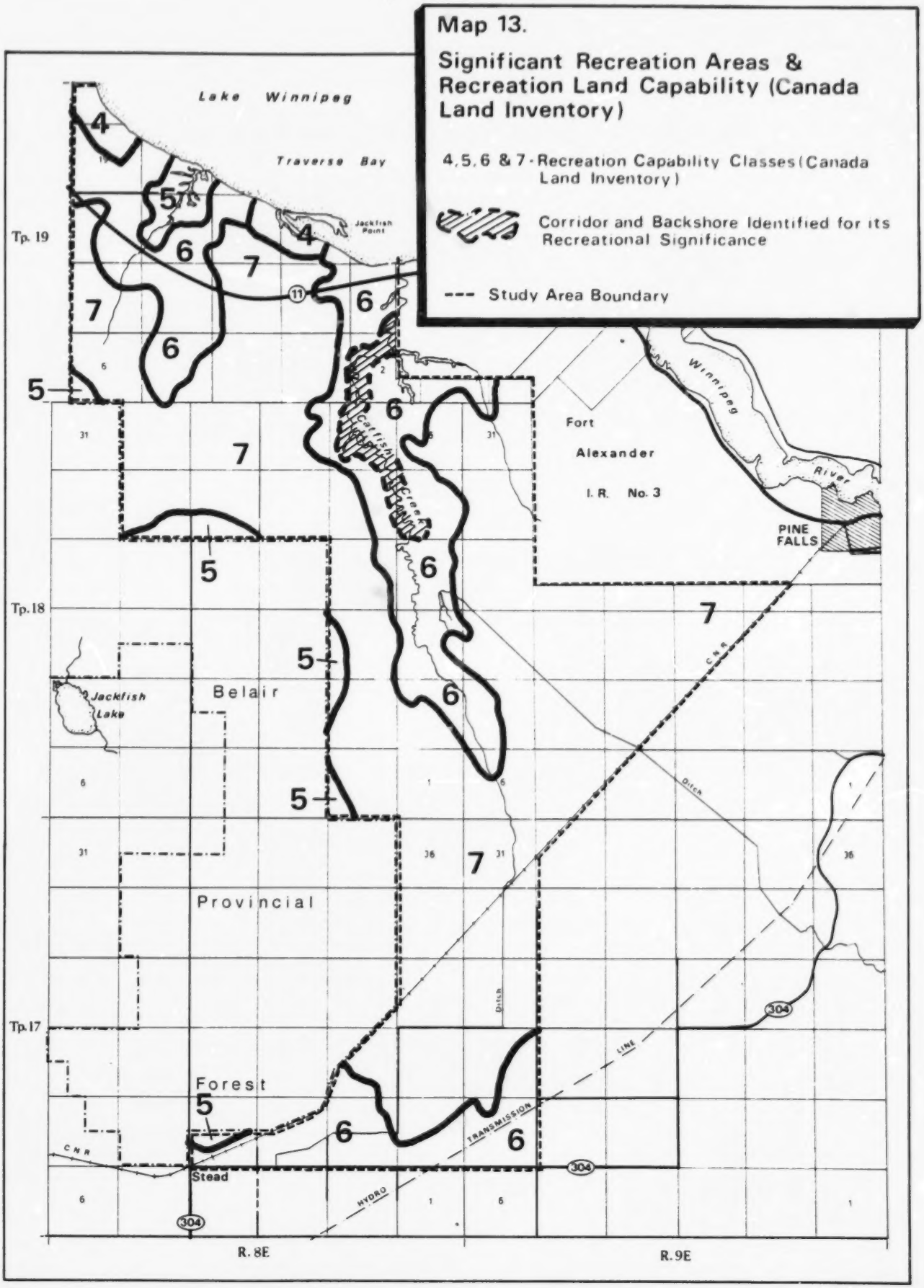
The corridor is important for the following reasons:

1. Access to the area can occur from Highway 11 to the north and by means of the main drains and creeks to the south where channelization and drainage systems link.

2. Hunting, trapping, fishing, and viewing occur on or from this corridor.

3. Wildlife concentration of ungulates and waterfowl are present in the corridor for either consumptive and non-consumptive purposes.

4. This access corridor is also considered as a mooring or harbour area for the local fishermen from the adjacent Fort Alexander Indian Reserve.


Map 13.
Significant Recreation Areas & Recreation Land Capability (Canada Land Inventory)
4,5,6 & 7 - Recreation Capability Classes (Canada Land Inventory)
Corridor and Backshore Identified for its Recreational Significance
--- Study Area Boundary
Lake Winnipeg
Traverse Bay
Jackfish Point
Tp. 19
Tp. 18
Tp. 17
Fort Alexander I. R. No. 3
Winnipeg River
PINE FALLS
Catfish Creek
Jackfish Lake
Belair
Provincial Forest
Stead
CNR
Ditch
TRANSMISSION LINE
HYDRO
304
11
R. 8E
R. 9E

The Catfish Creek corridor is an outstanding area for wildlife. It should be recognized and offered a classification to preserve the corridor as a natural area. Adequate buffers are also required for this waterway. A 90 meter (300 feet) buffer on each side of the creek is necessary for the natural area corridor recognition. Even a more rigid form of protection to these Class 2 wildlife lands is suggested in order to safeguard that resource.

As this creek corridor is increasingly receiving a higher use, the demand for recreational water oriented opportunities will also increase in the future.

The potential concern is agricultural encroachment to sites along the Catfish Creek corridor area. The emphasis here is the recognition of strict buffers to protect the corridor.

It is difficult if not impossible to quantify the cost-benefit of this area from a recreational perspective. At best the value of the recreational opportunities afforded by the area would be considered intangible. However, it is known that recreational hunting, canoeing, boating and wildlife viewing are important in the corridor.

SECTION 6. WILDLIFE

Introduction

The Catfish Creek area is considered to be a major wildlife production area within eastern Manitoba. Wildlife capabilities are high as indicated by the variety and abundance of wildlife species using the area. Excellent habitat for game species provides opportunity for wildlife use by all Manitobans. Non-game and endangered species depend heavily on critical habitat types which provide sufficient cover for reproduction and survival.

Important areas for wildlife include the upland wooded areas, river corridors, bogs and natural wetland. These areas support populations of moose, white-tail deer, bear, timber wolves, ruffed and sharp-tailed grouse, numerous fur bearers, waterfowl, several endangered species and a vast number of non-game animals.

Within the Study Area are lands with Canada Land Inventory ungulate ratings of 2, 3, 5 and 6 (Map 14). Those lands with class 2 and 3 are of the highest capability for ungulates in the area east of Lake Winnipeg and south of the Winnipeg River and are critical to the production of wildlife. In particular, moose and deer are dependent on habitat within class 2 zones.

The area also provides habitat for fur bearers such as red fox, coyote, fisher, otter, beaver, mink and muskrat. The Catfish Creek area provides excellent opportunity for trapping and recreational hunting of these species.

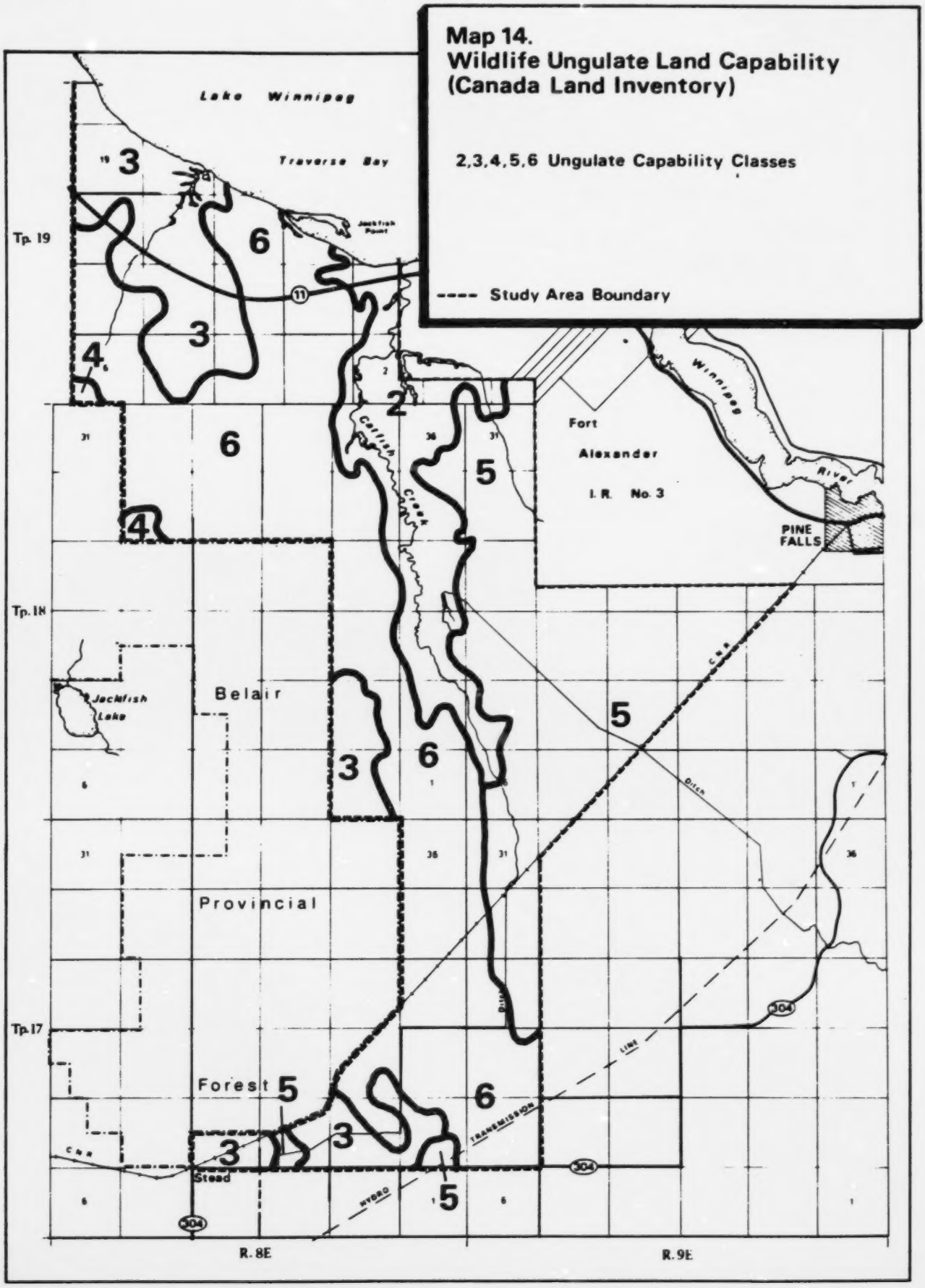
Although waterfowl capabilities for the area are low, the Creek corridor is capable of supporting a local population of waterfowl and is considered important as a staging area during the fall.

The area is important to a variety of hawks, owls, eagles, and numerous other non-game birds and mammals. The great grey owl is abundant throughout the area and is studied annually through a tagging program undertaken by the Wildlife Branch.

Wildlife Capability and Habitat

Ungulates

Land capability for the production of ungulates within the Study Area consist of C.L.I. class 2, 3, 5 and 6. Class 2 and 3 lands are considered critical to the production of ungulates. This "production area" is responsible for the


Map 14.
Wildlife Ungulate Land Capability
(Canada Land Inventory)
2,3,4,5,6 Ungulate Capability Classes
---- Study Area Boundary
Lake Winnipeg
Traverse Bay
Jackfish Point
Tp. 19
Tp. 18
Tp. 17
Fort
Alexander
I. R. No. 3
Winnipeg
River
PINE
FALLS
Catfish
Creek
Belair
Jackfish
Lake
Provincial
Forest
Stead
CNR
Ditch
TRANSMISSION
LINE
HYDRO
304
11
R. 8E
R. 9E

maintenance of deer and moose populations in Game Hunting Area 34. The productive capability of the class 2 zones is mainly due to the abundance and availability of preferred habitat. Habitat areas contained in the class 2 zone include riparian habitat, escape cover, winter cover, and browse.

Areas of critical importance include the "riparian zone" which is identified by the presence of vegetation requiring large amounts of free or unbound water. It involves all vegetation from the edge of the Catfish Creek to where upland habitat becomes dominant. Vegetation includes aquatic plants, sedges, and grasses, a variety of important browse species, deciduous trees, and coniferous trees. It provides wildlife with the required habitat components for reproduction and survival, hence it is used much more than any other habitat and is considered critical within the Study Area.

Also within the class 2 area are cover components required for winter survival and escape from predators. These are characterized by the availability of natural wooded cover interspersed with browsing areas. All class 2 lands are critical to moose and deer.

Class 2 lands consist of prime ungulate habitat which are presently limited in most areas of the province and are considered "wildlife priority areas". Present rates of land clearing throughout southern Manitoba intensify the need to maintain these areas of Crown land ungulate habitat. These lands are especially critical for the maintenance of harvestable deer and moose populations in Game Hunting Area 34.

Furbearers

The area is capable of supporting harvestable populations of a variety of fur bearers. Those of importance are beaver, muskrat, mink, otter, red fox, coyote, fisher, timber wolves, squirrel, and ermine. The productive capabilities of fur bearers is high within the Study Area due mainly to the presence of high quality riparian and upland habitat.

Various habitat types provide the required components for fur bearer production and survival. Beaver, muskrat, mink and otter depend on the presence of adequate water levels along the creek corridor. The associated vegetation along the creek and small ponds and marshes are critical to beaver and muskrat production. Mink and otter also depend heavily on this area. Riparian habitat is critical to both the survival and reproduction of these species.

Upland habitats are required by fox, coyote, and wolf. They depend on these areas as a source of food and shelter. Ungulates, snowshoe hare, squirrel, mice, and many small mammals produced in these areas provide food for the larger carnivores. Fisher require mature mixed wood habitats with areas of significant dead fall being used heavily for hunting and reproduction.

The areas with the highest fur bearer capabilities are all class 2 and 3 ungulate lands and all riparian habitat.

Upland Game Birds

Ruffed, sharp-tailed, and spruce grouse, and grey partridge are found within the area with ruffed and sharp-tailed grouse being the most common. Ruffed

grouse are dependent on mature deciduous woodlands whereas sharp-tails require an interspersion of open willow and grassy areas. The grey partridge are associated with agricultural lands and require grasslands or shelter belts in close proximity to cereal stubble.

The area has a high capability for producing grouse. When population cycles peak, birds become numerous and the opportunity for viewing and hunting is increased.

Waterfowl

Waterfowl capabilities are limited. The small ponds and marshes located in the lower reaches of the Catfish Creek provide nesting cover and brood rearing habitat for most waterfowl. These areas also provide for staging of waterfowl during the spring and fall migrations.

Lack of high quality nesting cover becomes the limiting factor within the creek corridor. However the productive capability could be increased with the enhancement of quality nesting cover. Habitat in the upper reaches is important to Wood Ducks which require mature, deciduous, wooded habitats where dead trees provide cavities for nesting. This is within the class 2 ungulate zones.

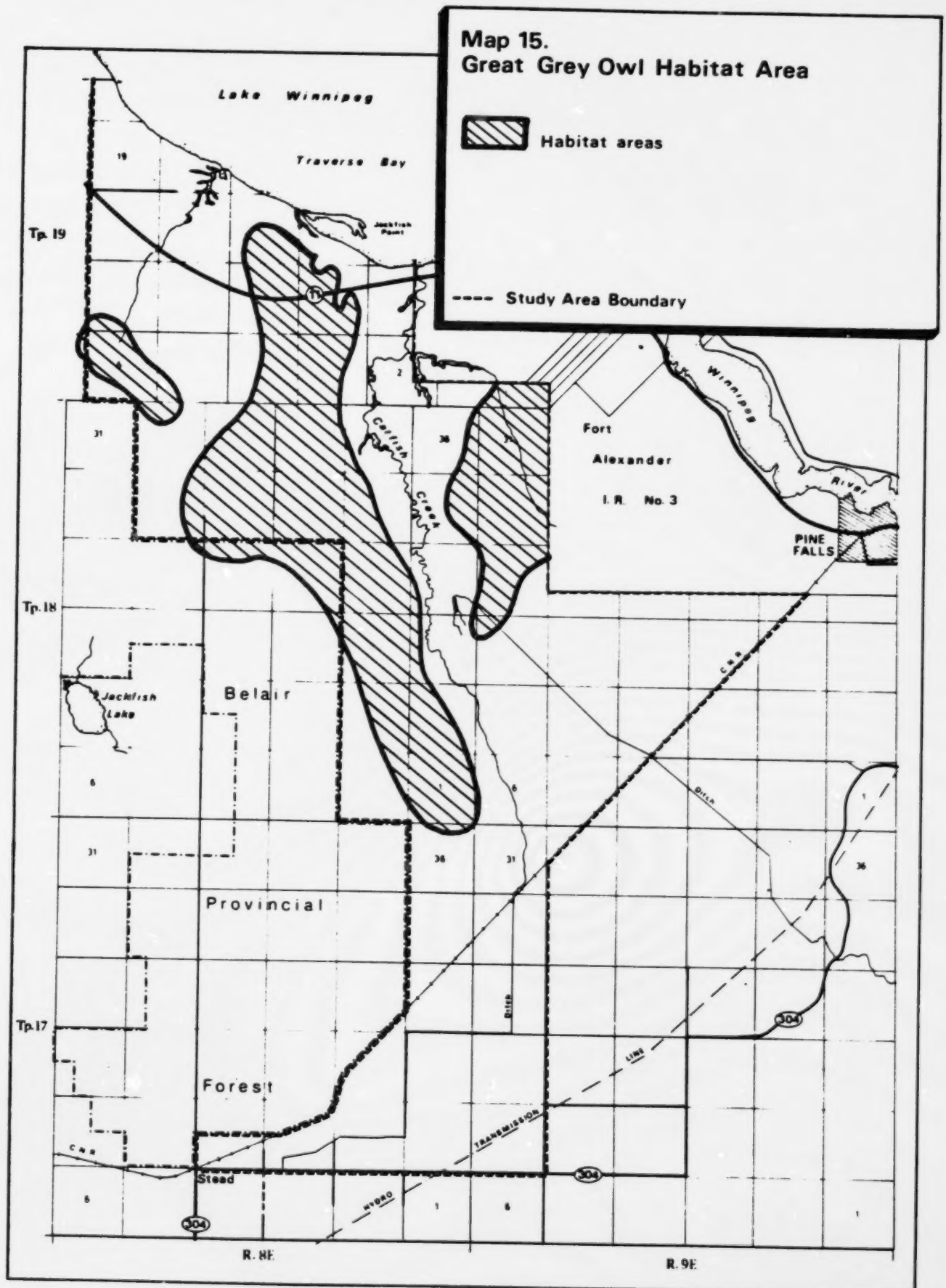
Non-Game Species

Song birds, hawks, owls, bald eagles, water and shore birds, and a vast number of other non-game birds and animals are abundant in the area. Passerine birds are found in all habitat types throughout the area. Water birds, shore birds, and eagle are dependent on habitat in the class 2 zones. Heron and eagle nesting sites are common along the creek corridor. Hawks and owls are found in more mature habitats where rodents, grouse and other prey are numerous.

Endangered Species

Great Grey Owls are an endangered species that occur throughout the Study Area. These owls are presently being studied by the Wildlife Branch in order to identify their breeding range and reproductive success. Twenty-five owls were tagged in 1983 within the Study Area.

These owls are dependent upon bogs and adjacent mature upland habitats. In late winter their range expands to open areas in search of prey. Maintenance of Great Grey Owl range within the Study Area is critical to the survival of this endangered species (Map 15).


Map 15.
Great Grey Owl Habitat Area
Habitat areas
Study Area Boundary
Lake Winnipeg
Traverse Bay
Tp. 19
Tp. 18
Tp. 17
Catfish Creek
Fort Alexander I.R. No. 3
Winnipeg River
PINE FALLS
Jackfish Lake
Belair
Provincial Forest
Stead
CNR
HYDRO TRANSMISSION LINE
Birch River
304
R. 8E
R. 9E

Wildlife Use

Those utilizing wildlife include the surrounding communities of Powerview, St. George, Pine Falls, Fort Alexander, and Stead. Because of the area's southerly location opportunity for wildlife use is also provided to people from Winnipeg, Selkirk, Beausejour, Lac du Bonnet, and others.

Due to the variety and abundance of game and non-game species, the area provides for a wide range of use by Manitobans. These uses include subsistant use of deer and moose by Treaty Indians, sport hunting, trapping, and wildlife viewing.

The Study Area is bordered by the Fort Alexander Indian Reserve, a population of approximately 1,425 people. The area provides opportunity for Treaty Indians to hunt in a traditional manner.

There are, at present, sport hunting seasons on moose, deer, bear, waterfowl, and upland game. There is an annual influx of people from all of the communities mentioned, including Winnipeg. It is considered an important area for providing sport hunting opportunity because of the variety and abundance of wildlife in close proximity to these major population centers.

The area is trapped under "open" area regulations, which provides many people from the adjacent communities with the opportunity to trap fur bearers in an area where they are abundant.

The area provides excellent opportunity for such activities as bird watching, wildlife interpretation, and general wildlife appreciation. These non-consumptive uses are considered an integral part of wildlife management objectives.

All of these activities directly or indirectly contribute to the economy of Manitoba.

Concerns and Issues

The greatest concern involving wildlife in Manitoba today is loss of habitat. Agricultural development and the associated drainage of wetland areas and clearing of wooded lands eliminates the capability of the area to produce wildlife. Extensive forestry operations and the associated access to previously remote areas are also cause for concern.

The Catfish Creek Corridor is the "wildlife production area" for Game Hunting Area 34. Class 2 and 3 lands are critical, and therefore must be protected if wildlife numbers are to be maintained. Loss of any of these lands will have a significant impact on wildlife populations.

Extensive agricultural development in wildlife areas has a negative impact on wildlife populations. Extensive clearing of wooded lands and burning or removal of peat and brush severely reduces the carrying capacity of the land for wildlife. To maintain present wildlife numbers agricultural development of class 2 and 3 zones should not be permitted.

The Catfish Creek area is prime beaver habitat. With the advance of agricultural development near existing stream or drainage systems, there is a concern for local damming and flooding. The problem is potentially serious and could cause property damage and considerable expense to locals and the Provincial Government for removal of problem beaver and dams. Problems of this nature occur extensively in the surrounding agricultural area.

Forestry operations in wildlife areas need not have a negative impact on wildlife. With new and innovative techniques, forest harvesting may, in fact, enhance the wildlife capabilities of the area. Small scale modified harvest cuts during winter is one method of enhancing habitat for wildlife. This integrated approach provides habitat diversity in areas where it may be required. Both forestry and wildlife may benefit, however, caution should be practiced in critical wildlife areas. Over-development of roads and harvest blocks may reverse any positive impacts that could be achieved.

Critical Areas

In order to maintain or enhance existing ungulate populations, it is important to maintain the quality of habitat in all class 2 and 3 zones. Maintenance of these areas will ensure adequate populations of deer and moose as well as fur bearers. These class 2 and 3 zones are also critical to a variety of other non-game wildlife species. Integrated resource management of these areas is essential if present wildlife populations are to be sustained.

All Owl habitat is considered to be of major importance to the breeding and survival success of these owls.

It is imperative that drainage and extensive clearing not occur in critical habitat areas such as the Class 2 lands and Owl habitat.

SECTION 7. WATER RESOURCES

Introduction

The main surface water feature in the area is the Catfish Creek which runs approximately midway through the Study Area (Map 16). Minor natural waterways can be found tributary to the Catfish Creek. A second minor creek, known as Jackfish Creek, flows directly into Lake Winnipeg. Small ponds occur in the northwest part of the Study Area.

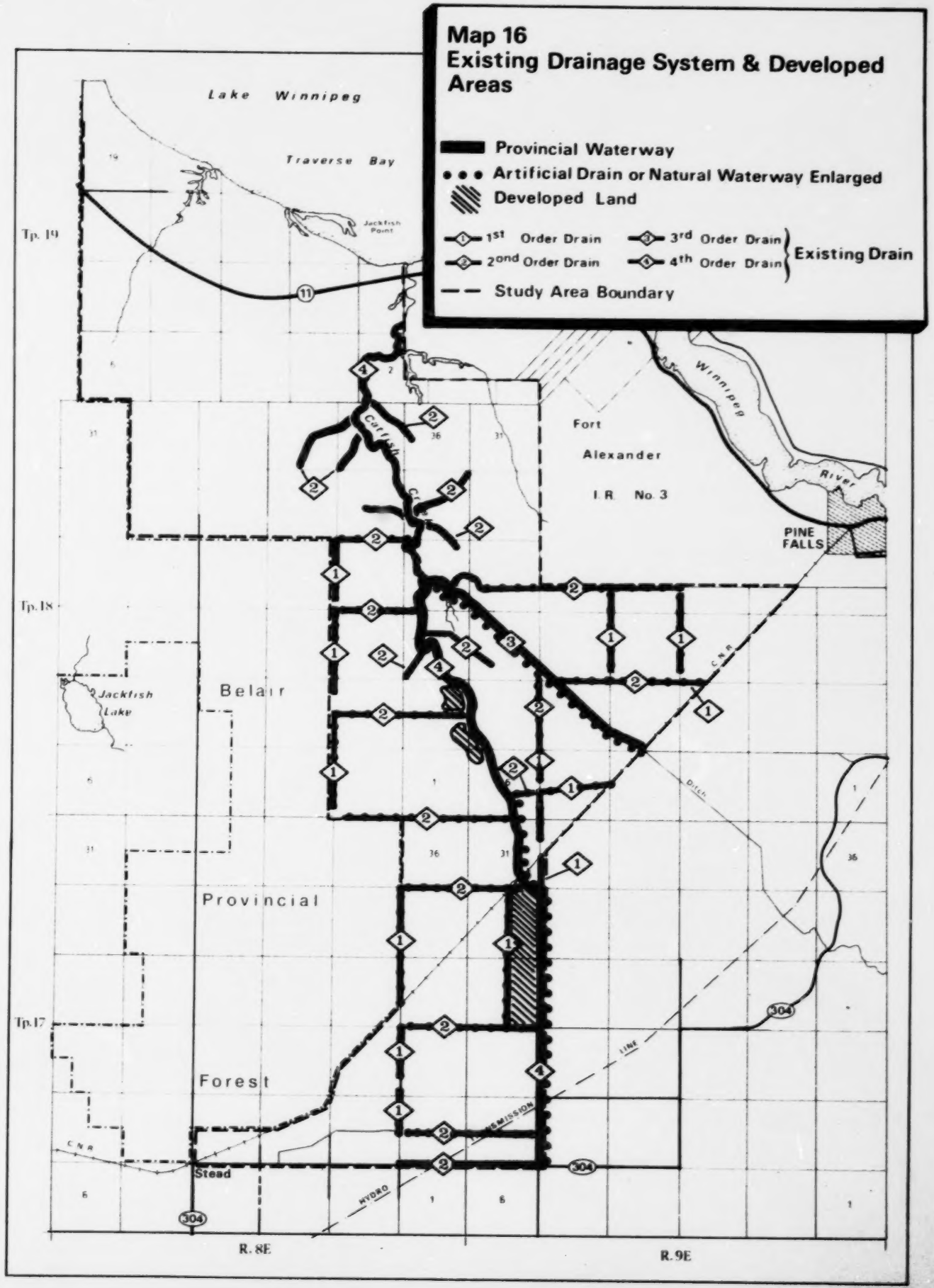
The Catfish Creek serves as an outlet for an extensive artifically drained agricultural area, which lies, with minor exception, outside the Study Area. The Creek is in its natural state from its outlet at Traverse Bay to a point within Section 6-18-8E. Upstream from this point, the waterway has been artificially enlarged and may be considered an artificial channel.

The existing agricultural drainage system within the Study Area consists of a network of pioneer drains, tributary to the Catfish Creek, established in the late 1940's and early 1950's as part of a land development project carried out by the Lands Branch. Land development for agriculture did occur in a large part of the original overall land development project area but only to a minor degree within the area now under study. The tributary drains within the Study Area have not been maintained since they were excavated and are in a deteriorated condition.

Shorelines, Bank Stability, Flood Hazard

In general, shorelines associated with the northernmost portion of the Study Area consist of erodible lacustrine clay. The offshore is shallow with an intermittent cover of sand, gravel and cobble in the beach zone. The backshore is low, roughly at an elevation of 219.5 meters (720 feet) and wet. At low lake levels, the waves break in the shallow offshore and move the granular material toward the shore. At these low lake levels the shoreline is stable. At high lake levels the offshore water is deeper and the waves attack the shoreline causing it to retreat at a rate estimated to be several meters per year. The quantity of granular material on the beach is inadequate to significantly retard erosion at high lake levels.

Another shoreline feature observed is a sand spit formed by granular material moved by waves in an easterly direction along the shoreline. Its existence may possibly be due to the existence of a bedrock reef nearby.


Map 16
Existing Drainage System & Developed Areas
Provincial Waterway
Artificial Drain or Natural Waterway Enlarged
Developed Land
1st Order Drain
2ond Order Drain
3rd Order Drain
4th Order Drain
Existing Drain
Study Area Boundary
Lake Winnipeg
Traverse Bay
Jackfish Point
Tp. 19
Tp. 18
Tp. 17
Fort Alexander I.R. No. 3
Winnipeg River
PINE FALLS
Jackfish Lake
Belair
Provincial Forest
C.N.R.
Stead
304
HYDRO LINE
R. 8E
R. 9E

The shoreline and back shore are not likely suitable for development and should be appropriately protected from inappropriate use.

In regards to flood hazards the only two conceivable sources would be the outflow from Catfish Creek and by the Lake Winnipeg water level fluctuations. Neither appear to be of a concern unless development were to take place inappropriately on low lands nearer the lake or along the lower reaches of Catfish Creek.

Groundwater

The main expressed concern with respect to groundwater is the possible effect of drainage on the existing Belair Provincial Forest. Specific information is limited, however, from general considerations it would appear that any effect would be limited to the low eastern edge only, or below the 775 foot (236 meter) contour line. Groundwater which may be supporting growth at higher elevations would involve shallow perched sand and gravel aquifers independent of the lowland conditions.

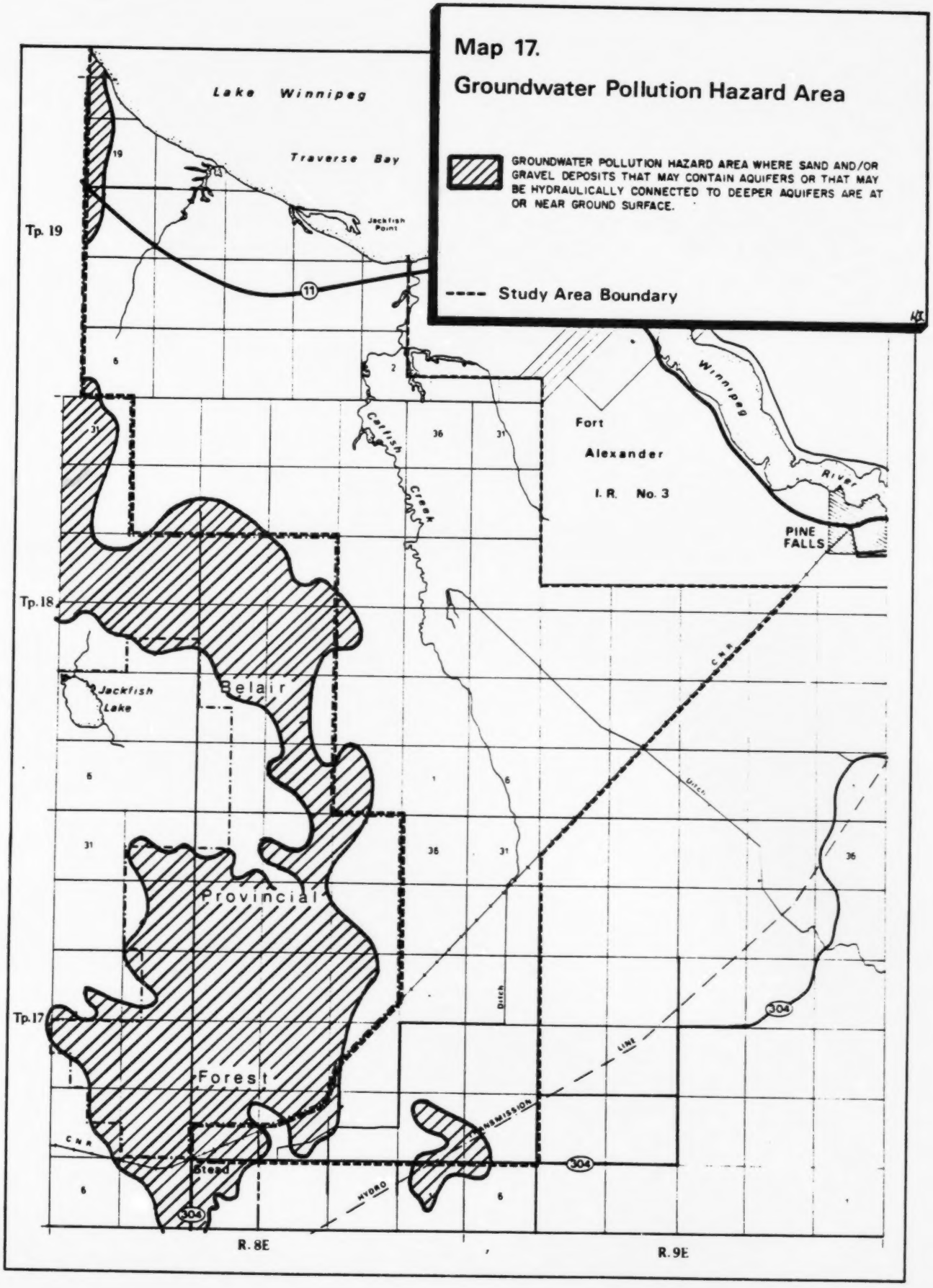
If the lowlands are ultimately divided between provincial forest and agricultural development, then an evaluation of the effect of the drainage, in support of agriculture, on the lowland forest reserve would require investigation.

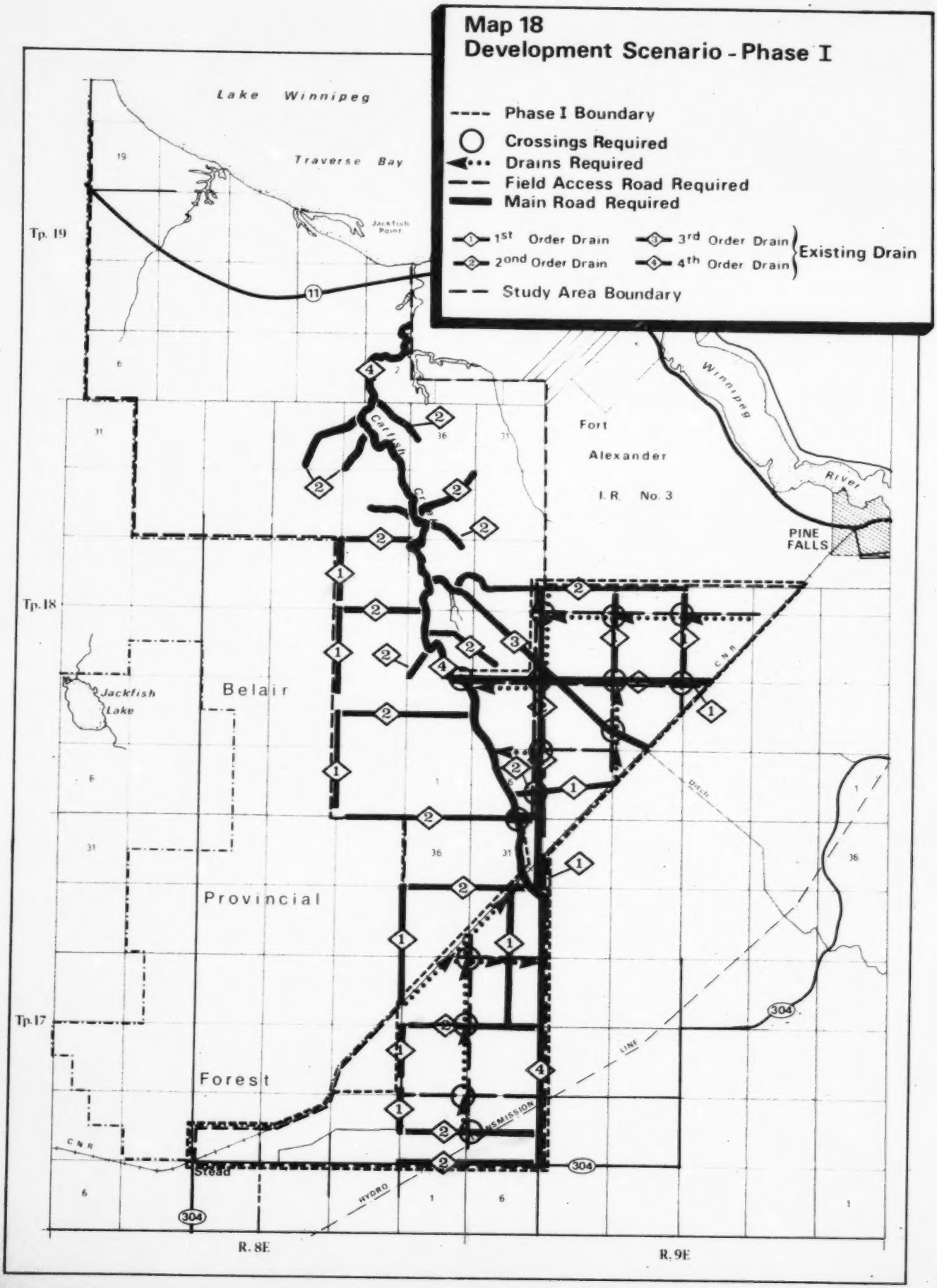
There are essentially no groundwater pollution concerns in the Study Area (Map 17).

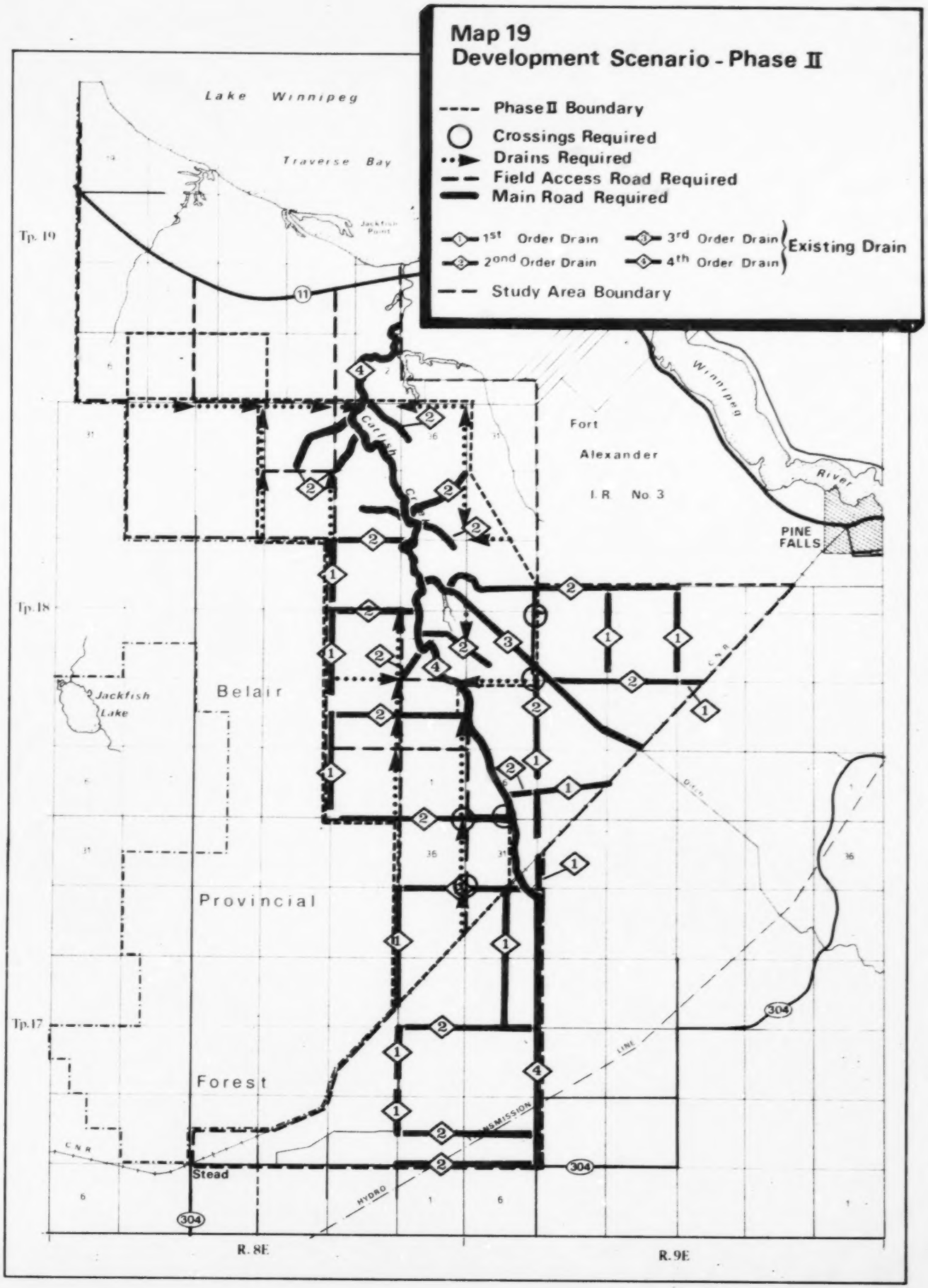
Land Drainage

Extensive agricultural development of peat and mineral soil lands within the Catfish Creek drainage area has occurred south of the Study Area. More recently development pressures have begun to occur northward.

The implications of development for agricultural production in terms of required infrastructure, is discussed on the basis of two phase approach. Phase I (Map 18) represents the scope of development which may be expected to occur as an initial thrust based on individual initiatives and assuming an ability to establish the corresponding infrastructure of access and drainage. Phase II (Map 19) represents more difficult and more remote development which may or may not follow Phase I.


Map 17.
Groundwater Pollution Hazard Area
GROUNDWATER POLLUTION HAZARD AREA WHERE SAND AND/OR GRAVEL DEPOSITS THAT MAY CONTAIN AQUIFERS OR THAT MAY BE HYDRAULICALLY CONNECTED TO DEEPER AQUIFERS ARE AT OR NEAR GROUND SURFACE.
---- Study Area Boundary
Lake Winnipeg
Traverse Bay
Jackfish Point
Tp. 19
Tp. 18
Tp. 17
Fort Alexander I. R. No. 3
Winnipeg River
PINE FALLS
Catfish Creek
Jackfish Lake
Belair
Provincial Forest
C N R
Ditch
304
HYDRO LINE
TRANSMISSION
Stead
R. 8E
R. 9E


Map 18
Development Scenario - Phase I
Phase I Boundary
Crossings Required
Drains Required
Field Access Road Required
Main Road Required
1st Order Drain
2ond Order Drain
3rd Order Drain
4th Order Drain
Existing Drain
Study Area Boundary
Lake Winnipeg
Traverse Bay
Jackfish Point
Tp. 19
Tp. 18
Tp. 17
Fort Alexander I.R. No. 3
Winnipeg River
PINE FALLS
Carfish Cr.
Jackfish Lake
Belair
Provincial Forest
C.N.R.
Stead
HYDRO TRANSMISSION LINE
304
11
R. 8E
R. 9E


Map 19
Development Scenario - Phase II
Phase II Boundary
Crossings Required
Drains Required
Field Access Road Required
Main Road Required
1st Order Drain
2nd Order Drain
3rd Order Drain
4th Order Drain
Existing Drain
Study Area Boundary
Lake Winnipeg
Traverse Bay
Jackfish Point
Tp. 19
Tp. 18
Tp. 17
Fort Alexander I.R. No. 3
Winnipeg River
PINE FALLS
Belair
Jackfish Lake
Provincial Forest
Stead
CNR
HYDRO TRANSMISSION LINE
304
11
R. 8E
R. 9E

Infrastructure Costs

Cost estimates have been developed for the two phases based on the costs of restoring the existing drains, building new drains as necessary, and establishing the roads and crossings necessary for access. The estimates were derived by considering what seem to be reasonable scenarios as to the drain and road networks that could be expected to occur.

In considering the infrastructure required to allow agricultural land development to occur, consideration must be given to drains, roads, and crossings. In terms of drainage, the original deteriorated pioneer drains must be restored as new drains are excavated. Roads would take the form of those required for field access only and those required to be established to an all weather municipal standard.

Estimating costs must of necessity be a rather crude exercise. However, they should serve to gain a perspective on the scale of costs involved. The development costs for Phases I and II are based essentially on the following:

	Cost per Mile
1. Restoring or excavating new pioneer drains	$25,000
2. Restoring or excavating new pioneer drains plus field access roads	30,000
3. Restoring or excavating new pioneer drains plus establishing municipal standard roads	40,000
4. Crossings (average cost)	
(a) municipal roads	6,000
(b) private access	5,000
Crossings on Main Drain No. 1	20,000
Crossings on Catfish Creek	90,000

The above costs reflect the initial costs of establishing the networks of "pioneer drains" and access roads. As the land is brought fully into agricultural production, demands to upgrade the systems can be expected. On a very approximate basis, the overall cost of upgrading is set at $8,000/mile.

To put in place the infrastructure of roads, drains and crossings as indicated for Phase I, the cost is estimated to be approximately $1.6 million. To carry the development further over a wider area (Phase II) is estimated at an additional $2.0 million, or a total of $3.6 million for the entire area. These are costs in terms of "pioneer" development. As the land is brought fully into agricultural production, a requirement to upgrade the system can be expected. For Phase I, this is expected to cost about $0.30 million, and for Phase II, $0.37 million, or a total of $0.67 million (Table 8).

Table 8. Estimated Pioneer Infrastructure and Upgrading Costs

Development Scenario	Estimated Pioneer Infrastructure Costs	Upgrade Costs Estimated	Total
PHASE 1	$1,600,000	$300,000	$1,900,000
PHASE 2	$2,000,000	$370,000	$2,370,000
TOTAL	$3,600,000	$670,000	$4,270,000

The estimates must be considered very preliminary in nature intended only to provide an understanding of costs and are not definitive. These costs are relative to infrastructure only and make no attempt to indicate the cost of land development. These costs are considered to be within municipal jurisdiction. There may eventually be some additional cost to the Province in improvement works on the two provincial waterways, i.e., the Main Drain No. 1 and the Main Drain No. 2. These two main waterways are, however, considered to be adequate in both condition and capacity for the initial land development requirements.

The effect of agricultural development on flows in the Catfish Creek cannot be defined other than in very general terms. Conversion of peat soil natural areas to developed agricultural land will have an effect on flows in terms of the timing of the occurance of flows of any given magnitude. In other words the shape of the flow hydrograph could be expected to change. It does not necessarily follow, however, that the peak flow will increase under a given set of precipitation or snowmelt circumstances. It is generally recognized that artificial drainage systems have the greatest effect in terms of change over natural circumstances during periods of moderate precipitation and this effect decreases under more severe conditions.

Effect on water quality is difficult to predict other than to say that one could expect an increase in suspended material and fertilizer residue.

It should be noted that, in considering the affects on Catfish Creek flow quantity and quality, the effects from the Study Area would be overshadowed by the effects of the larger drainage area where substantial agricultural development has already occurred.

Responsibility for Drains

The responsibility for maintenance of artificial drains is divided between the Province and the Local Government District. Artificial drains, or artificially modified waterways, of a third order or higher, have generally been declared as provincial waterways. Artificial drains of first and second order are considered to be under municipal jurisdiction. Occasionally natural waterways of a third order or higher, in their natural state, are declared provincial waterways for the purpose of maintaining their natural capacity.

Within the Study Area, the Catfish Creek is a provincial waterway from the point of junction with the Main Drain No. 2 upstream to the limit of the Study Area. Main Drain No. 2 is also a provincial waterway within the Study Area. The tributary artificial drains of first and second order are considered to be under Local Government District jurisdiction.

Concerns and Issues

The main issue is whether or not these lands should be developed for agriculture or managed to meet some other resource objectives. Consideration of the water resource does not give rise to serious concern relative to the options under consideration.

The main concern with respect to the drainage infrastructure required for conversion of the land to agricultural production is the cost, who pays, and some concern about water management in the organic soils as opposed to a simple question of drainage as applied to clay soils. The requirements for water management in organic soils, in support of agricultural production, is not fully understood.

Infrastructure costs, plus land development costs, must, of course be balanced against the economic benefit to be gained.

LITERATURE CITED

Smith, R. and W. Ehrlich. 1967. Soils of the Lac du Bonnet Area. Manitoba Department of Agriculture and Canada Department of Agriculture. Winnipeg, Manitoba. Manitoba Soil Survey Soils Report No. 15. 118 pp.

APPENDICES

APPENDIX I. SOIL CAPABILITY FOR AGRICULTURE

ORGANIC SOILS

Capability Classes

The seven capability classes for organic soils, together with guide numbers to aid in the proper placement of the soils, are given below.

Class 1 (85-100). Organic soils in this class have no limitations because of water, topography, or soil pH, and are deep and level. They are located in areas that have mild or warmer soil temperatures.

Class 2 (70-80). Organic soils in this class have one limitation that somewhat restricts their use. The limitation may be soil temperature, coarse fragments, woody layers, salinity, depth, or slope.

Class 3 (55-65). Organic soils in this class have moderately severe limitations that restrict the range of crops or require special management practices.

Class 4 (40-50). Organic soils in this class have limitations that severely restrict the range of crops or require special development and management practices.

Class 5 (25-35). Organic soils of this class have severe limitations that restrict the production of perennial forage or other specially adapted crops. Large-scale reclamation if not feasible.*

Class 6 (10-20). Organic soils in this class are capable of producing only indigenous crops and improvement practices are not feasible.

Class 7 (less than 10). Organic soils of this class have no potential for agriculture.

MINERAL SOILS

In land capability classification, areas of soil are classified by use limitations into seven capability classes. Such a classification indicates to a farmer the major limitations in the use of his land. Farming practices may be adopted that permit the use of the land while maintaining a high level of productivity.

Class 1

Soils in this class have no significant limitations that restrict their use for crops.

Class 1 soils have level or gently sloping topography. They are deep, well to moderately drained, and have good water-holding capacities. These soils are naturally well supplied with plant nutrients. They are easily maintained in good tilth and fertility. The erosion hazard (wind and water) is low.

Class 2

Soils in this class have moderate limitations that reduce the choice of crops or require moderate conservation practices.

Class 2 soils require careful soil management, including conservation practices to prevent soil deterioration or to improve air and water relations. Moderate limitations singly, or in combindation, may result from: (1) topography, (2) slight to moderate damage from erosion, (3) somewhat less than ideal soil depth, (4) some difficulty in tillage owing to soil structure or stoniness, (5) wetness requiring drainage but existing permanently as a moderate limitation, (6) occasional hazard from flooding, (7) slow permeability of the subsoil, (8) moderate climatic limitations on soil management and use.

Soils in this class have good water-holding capacities and are either well supplied with plant nutrients or highly responsive to inputs of fertilizer.

*In the foregoing definitions, the term "feasible" implies that it is within present-day economic and technological possibility for an individual farmer to make such improvement and it does not require a major reclamation project to do so.

Class 3

Soils in this class have severe limitations that reduce the choice of crops or require special conservation practices.

Class 3 soils have moderately more severe restrictions than those in Class 2 and conservation practices are usually more difficult to apply and maintain. Limitations adversely affect the timing and ease of tillage, planting, harvesting; the choice of crops; the application of conservation practices; or some combination of these limitations. The limitations may result from: (1) moderately rough topography, (2) moderate damage from erosion, (3) less than ideal soil depth, (4) difficulty in tillage owing to soil structure or stoniness, (5) wetness or continued water logging after drainage, (6) frequent overflow accompanied by crop damage, (7) moderately low water-holding capacity, (8) very slow permeability of the subsoil, (9) moderate fertility status and not highly responsive to inputs of fertilizer, (10) moderately severe climatic limitations on soil management and use.

Class 4

Soils in this class have severe limitations that restrict the choice of crops; require special conservation practices and very careful management.

Class 4 soils have such limitations that they are only suited for a few crops. The yield for a range of crops may be low or the risk of crop failure high. Limitations may result from (1) rough topography or steep slopes, (2) severe damage from erosion, (3) shallow soils, (4) serious difficulty in tillage owing to soil structure or stoniness, (5) excessive wetness with continued hazard of water logging after drainage, (6) frequent overflows accompanied by severe crop damage, (7) low water-holding capacity, (8) low fertility not easily corrected, (9) severe climatic limitations on soil management and use.

Class 5

Soils in this class are unsuited for cultivated field crops, except perennial forage crops, and are responsive to improvement practices.

Class 5 soils have such serious soil, climatic, or other limitations as to make them unsuited for the production of field crops. However, they are suited to the production of adapted grasses and legumes. Improvement practices may include cultivation, seeding, liming, fertilizing, and water control.

Class 6

Soils in this class are unsuited to cultivation but are capable of use for unimproved permanent pasture.

Class 6 soils have a natural grazing capacity for farm animals but have such serious soil, climatic, or other limitations as to make impractical the application of improvement practices which can be carried out on Class 5 soils. Soils are placed in this class because their physical nature prevents them, or because the soils are not responsive to improvement practices, or because of a short grazing season, or because stock watering facilities are inadequate.

Class 7

Lands unsuited for agriculture.

The soil areas in this class have very serious climatic or soil limitations that prevent their use for cultivated crops or improved permanent pasture and are not naturally suited for unimproved permanent pasture. All land areas not included in Classes 1 to 6 are placed in this class. Hence, this class includes productive forest land, waste land, bodies of water too small to delineate on maps, townsites, parks, airports, railroads, and roads.

APPENDIX 2. Economic Indicators - Assumptions

1. Gross Value of Shipments

Five year average values (1977-1981) were used for pulpwood, logs and bolts, and other products. Adjusted to 1983 dollars by IPI, 1982 = 10.7%, 1983 assumed to be 6%.

Assumed product composition as follows: pulpwood 65%, logs and bolts 14%, chips 15%, waste 6%.

Derived unit value is $32.46/m^3 for logging, $101/m^3 for primary manufacturing.

2. Gross Provincial Product

Based upon value added estimates. The method was similar to that used to derive the gross value of shipments.

Derived unit value is $14.50/m^3 for logging, $42/m^3 for primary manufacturing.

3. Provincial Government Receipts

It is assumed that the provincial government raises its own revenues (excluding federal transfer payments) at a rate of 10% of value added.

4. Employment

Based upon a 5 year average rate of 0.39 man years per thousand cubic meters for logging. Comparable factor for primary manufacturing is 0.34/1000m^3.

5. Primary Manufacturing industries include sawmills, pulp and paper mills, and miscellaneous wood industries.